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THE
GULF OF ADEN
PILOT.

THIRD EDITION 1887.

HYDROGRAPHIC OFFICE,
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THE
GULF OF ADEN PILOT,

CONTAINING A DESCRIPTION OF
SOKÓTRA AND ADJACENT ISLANDS, SOMÁLI AND
ARABIAN COASTS IN THE GULF OF ADEN,
AND THE EAST COAST OF ARABIA.

THIRD EDITION.

PUBLISHED BY ORDER OF THE LORDS COMMISSIONERS OF THE ADMIRALTY.

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ADVERTISEMENT TO THE THIRD EDITION.

THE Gulf of Aden Pilot contains sailing directions for the gulf of Aden and the south-east coast of Arabia. They have been compiled from the following authorities—chiefly officers of the late Indian Navy :

The island of Sokótra is from the survey of Captain S. B. Haines, I.N., in 1834-35 ; and the islands to the westward from the survey of Lieutenant A. M. Grieve, I.N., in 1848.

The Somali coast from Ras Hafún to the entrance to the Red sea is chiefly from the surveys of Captain Carless, I.N., in 1838, Lieutenant W. C. Barker, I.N., in 1841, and Lieutenant A. M. Grieve, I.N., in 1848. Recent additions are, Obokh, from a French survey of 1881 ; Berbereh, by Lieutenants Johnson and Stuart of H.M.S. *Arab* and *Ranger*, 1884, and Zeila roadstead, by Commander H. Hoskyn, H.M. Surveying vessel *Myrmidon*, 1885.

The Arabian coast, from the entrance to the Red sea to Ras-al-Hadd, is from the surveys of Captain S. B. Haines, I.N., in 1833-34-35 : Captain J. P. Sanders, I.N., in 1844-45, and Lieutenant A. M. Grieve, I.N., in 1846-48-49, including a Memoir by H. J. Carter, Esq., Bombay Medical Service ; Perim harbour was re-surveyed by Commander H. Hoskyn, R.N., 1885.

The description of the prevailing winds and currents is from the same sources, as also from the investigations made by Lieutenant A. D. Taylor, I.N., Lieutenant Ferguson, I.N., and the Admiralty Wind and Current Charts.

This work was originally compiled in 1863, by Commander C. Y. Ward, I.N.

The second edition, with additions, was revised by Captain G. H. Inskip, R.N.

In the present edition, revised by Staff-Commander C. H. C. Langdon, of the Hydrographic Department, the most recent information, resulting from the visits of Her Majesty's vessels, has been incorporated. The names of places mentioned in this work, rest chiefly on the authority of Major Hunter, H.M. Political Agent at Aden, and Lieut.-Colonel E. Mockler, Political Agent and Consul at Maskat.

Seamen are invited to transmit to the Secretary of the Admiralty notice of any errors or omissions they may discover, or additional information they may obtain, with a view to the improvement of this work for the benefit of the mariner.

By the publication of this work, all Hydrographic Notices relating to the former edition, as also all Notices to Mariners, inclusive of No. 173 of 1887, are cancelled.

W. J. L. W.

Hydrographic Office, Admiralty, London.
October, 1887.

ORTHOGRAPHY.

As far as has been found possible, the native names in this book are spelt in accordance with the following system, which will be gradually introduced into all Admiralty Sailing Directions:—

Where native names have been so long written in a form, which, though not in accordance with this system, has become familiar to English eyes from being so spelt in all charts and maps, they are retained, and no European names are changed from the correct orthography.

Information as to the proper spelling of native names so as to produce the nearest approximation to the true sound, by this system, is invited, but it must be remembered that only an approximation is aimed at. The position of the accent denoting the syllable on which emphasis, or the “stress,” should be laid is very important, as the sound of so many words is utterly *changed* by its misplacement.

Letters.	Pronunciation and Remarks.	Examples.
a	<i>ah, a</i> as in <i>father</i>	Java, Banána, Somáli.
e	<i>eh, e</i> as in <i>benefit</i>	Bari. Tel-el-Kebír, Oléleh, Yezo, Levúka, Peru.
i	English <i>e</i> ; <i>i</i> as in <i>ravine</i> ; the sound of <i>ee</i> in <i>beet</i> . Thus, not <i>Feejee</i> , but	Fiji, Hindi.
o	<i>o</i> as in <i>mote</i>	Tokio.
u	long <i>u</i> as in <i>flute</i> ; the sound of <i>oo</i> in <i>boot</i> . <i>oo</i> or <i>ou</i> should never be employed for this sound. Thus, not <i>Zooloo</i> or <i>Zoulou</i> , but ... All vowels are shortened in sound by doubling the following consonant. Doubling of a vowel is only necessary where there is a distinct repetition of the single sound.	Zulu, Sumatra. Yarra, Tanna, Mecca, Jidda, Bonny. Nuulúda.
ai	English <i>i</i> as in <i>ice</i>	Shanghai.
au	<i>ow</i> as in <i>how</i> thus, not <i>Foochow</i> , but is slightly different from above... ..	Fuchau.
ei	is the sound of the two Italian vowels, but is frequently slurred over, when it is scarcely to be distinguished from <i>ey</i> in the English <i>they</i> .	Macao.
b	English <i>b</i> .	Beirút, Beilúl.

Letters.	Pronunciation and Remarks.	Examples.
c	is always soft, but is so nearly the sound of <i>s</i> that it should be seldom used. If <i>Celebes</i> were not already recognised it would be written <i>Selebes</i> .	Celebes.
ch	is always soft as in church	Chingchin.
d	English <i>d</i> .	
f	English <i>f</i> . <i>ph</i> should not be used for the sound of <i>f</i> . Thus, not <i>Haiphong</i> , but	Haifong, Nafa.
g	is always hard. (Soft <i>g</i> is given by <i>j</i>) ...	Galápagos.
h	is always pronounced when inserted.	
j	English <i>j</i> . <i>Dj</i> should never be put for this sound.	Japan, Jinchuen.
k	English <i>k</i> . It should always be put for the hard <i>c</i> . Thus, not <i>Corea</i> , but	Korea.
kh	The Oriental guttural	Khan.
gh	is another guttural, as in the Turkish... ..	Dagh, Ghazi.
l	{ As in English.	
m		
n		
ng		
	has two separate sounds, the one hard as in the English word <i>finger</i> , the other as in <i>singer</i> . As these two sounds are rarely employed in the same locality, no attempt is made to distinguish between them.	
p	as in English.	
q	should never be employed; <i>qu</i> is given as <i>kw</i>	Kwangtung.
r	{ As in English.	
s		
t		
v		
w	Sawákin.
x		
y	is always a consonant, as in <i>yard</i> , and therefore should never be used as a terminal, <i>i</i> or <i>e</i> being substituted. Thus, not <i>Mikindány</i> , but not <i>Kwaly</i> , but	Kikúyu. Mikindáni. Kwale.
z	English <i>z</i> Accents should not generally be used, but where there is a very decided emphatic syllable or stress, which affects the sound of the word, it should be marked by an <i>acute</i> accent.	Zulu. Tongatábu, Galápagos, Paláwan, Saráwak.

By transfer
JUL 11 1916ARABIC WORDS USED IN THE DIRECTIONS, AND
ON THE CHARTS.

<i>Arabic.</i>	<i>English.</i>
Bander	A harbour or anchorage.
Balad	A town or village.
Bar	The land.
Beiyat	A shoal, dry at low water.
Ghubbet	A bay or gulf.
Hassar	A rock.
Jebel	A hill or mountain ; also an island.
Jezirat	An island.
Kinasat.....	A shoal or sandbank.
Karn or Garn	A peaked hill.
Khor	A creek or lagoon.
Mersa	An anchorage.
Nakhil	A date grove.
Ras	A cape or headland.
Rig, Rakat, or Rejjat	A shallow flat bank, extending off shore.
Shab	A rocky shoal.
Wadi	A valley.

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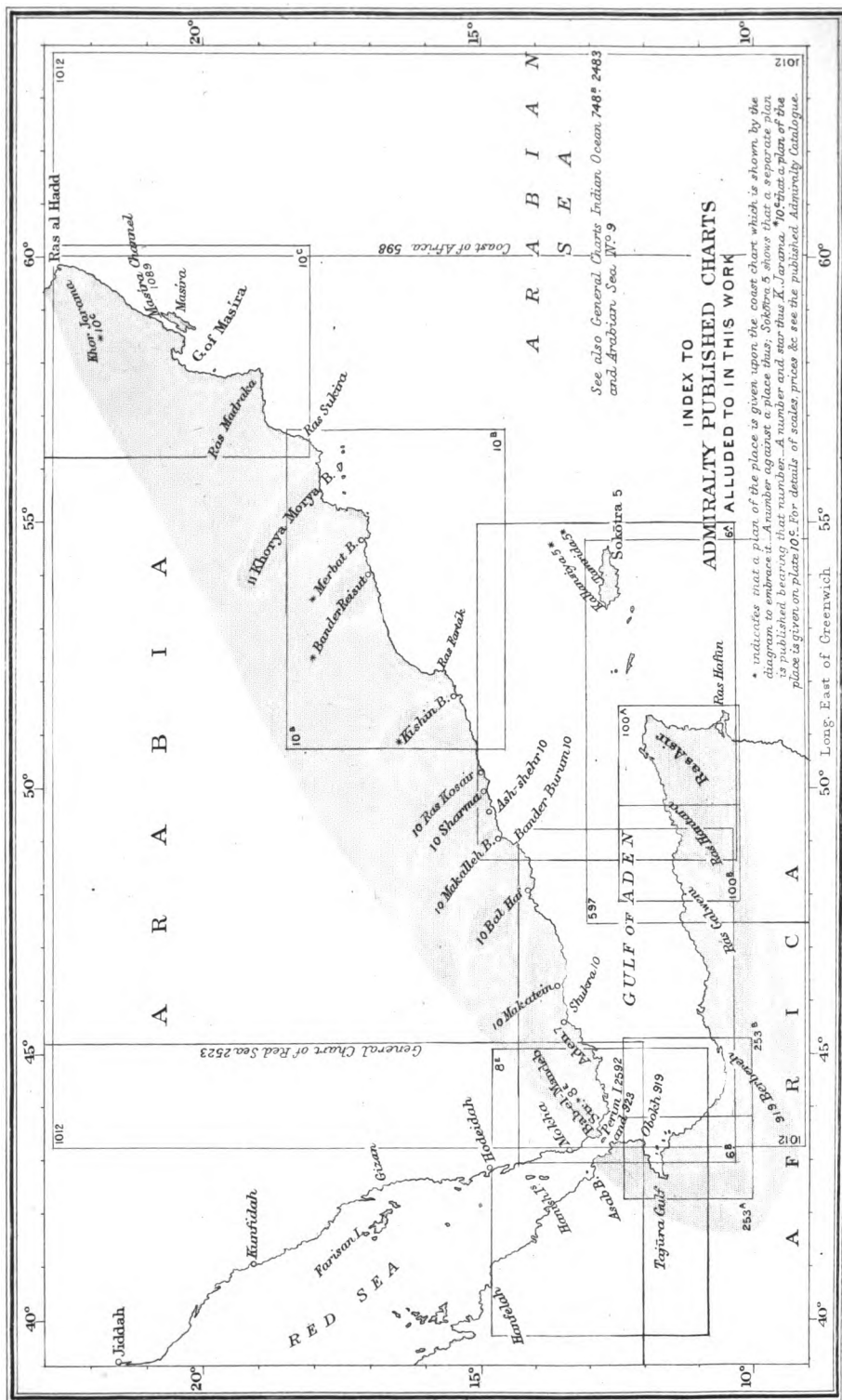
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**IN THIS WORK THE BEARINGS ARE ALL MAGNETIC
EXCEPT WHERE MARKED AS TRUE.**

**THE DISTANCES ARE EXPRESSED IN SEA MILES OF
60 TO A DEGREE OF LATITUDE.**

**A CABLE'S LENGTH IS ASSUMED TO BE EQUAL TO
100 FATHOMS.**

**THE SOUNDINGS ARE REDUCED TO LOW WATER OF
ORDINARY SPRING TIDES.**



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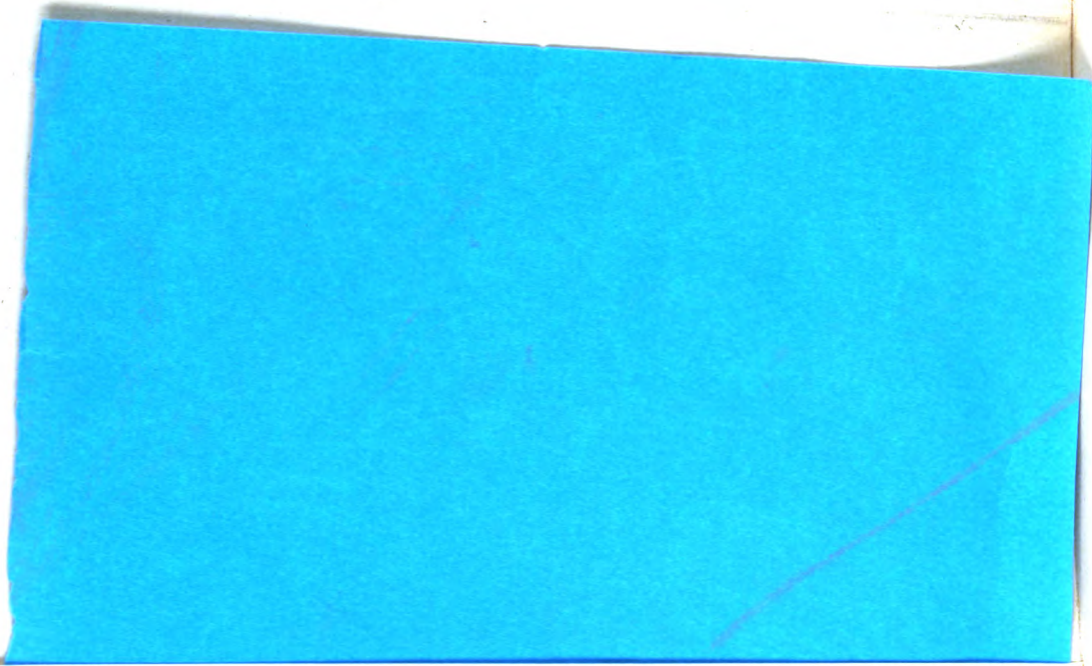
* indicates that a plan of the place is given upon the coast chart which is shown by the divided bearing against a place thus, Sokatra 5 shows that a separate plan is published bearing that number. A number and star thus K. Jaruma, 10* that a plan of the place is given on plan 105. For details of scales, prices &c see the published Admiralty Catalogue.

Engraved by Davies & Company

Corrected to Oct. 1887.

Nº 8 B. Gulf of Aden Pilot

For later information respecting the lights which are described in the Gulf of Aden Pilot, 1887, seamen should consult the Admiralty List of Lights in South Africa, East Indies, China, &c. This list is published early in the current year, corrected to the preceding 31st December.



THE GULF OF ADEN PILOT.

CHAPTER I.

GENERAL REMARKS—SOUTH-WEST MONSOON; NORTH-EAST MONSOON.—
GALES.—HURRICANES OR CYCLONES.—CURRENTS.—TIDES.—CLIMATE.
—MAKING PASSAGES.

The gulf of Aden pilot treats of that part of the coast of Arabia comprised between cape Bab-el-Mandeb at the entrance to the Red sea, and Ras-al-Hadd at the entrance to the Persian gulf; also of the African coast lying between Ras Siyan (opposite cape Bab-el-Mandeb) and Ras Hafún, including the island of Sokótra.

Chapter I. treats generally of winds, currents, and passages to the principal ports of India, Seychelles, and Zanzibar. The remaining chapters give a description of the shores of the gulf of Aden, beginning at Sokótra and Ras Hafún, and working westward to the entrance of the Red sea, thence eastward to the entrance of the Persian gulf.

GENERAL REMARKS.*—The south shore of the gulf of Aden, from Ras Asír westward nearly to Berbereh, is in general moderately high, the coast hills ranging from 500 to 1,000 feet in height, backed by limestone mountains and the Jebel Singali range, of from 6,000 to 7,000 feet elevation. These mountains afford an inexhaustible supply of frankincense, gums, &c., and the climate is said to be most invigorating, the natives retreating to them from the coast during the south-west monsoon period, when the heat at times is insufferable. At Berbereh, and to the westward as far as the entrance to the gulf of Tajúra, the coast is low and sandy, the mountains

* See Admiralty Chart, Gulf of Aden, general, No. 1,012.

receding from the coast to a distance of 15 to 20 miles; thence around the gulf, to the entrance to the Red sea, the hills again approach the coast, which becomes in many places precipitous.

Berbereh and Zeila are the only harbours, but with the exception of the outlying reefs in the approaches to Zeila, the whole coast may be considered safe to approach, and anchorage may be taken off any of the trading places during fine weather, in moderate depths of water. Trade on this coast is confined to the north-east monsoon period, October to March.

The north shore of the gulf of Aden, the south coast of Arabia, is principally a wide sandy plain, bordered in the distance by high ranges of mountains, dreary and unproductive, with scarcely a patch of verdure to relieve the eye, or break the monotony of the view. In some parts of this coast the mountains approach the sea, as in the province of Aden; also at Ras Farták, a cape which is uninterruptedly perpendicular for a distance of 6 miles and attains a height of 2,500 feet. Ras Sakar (Segar), farther to the eastward, is a similar cape, and visible in clear weather from a distance of 60 miles; these are both conspicuous landmarks.

Aden is the only harbour of importance on the north shore of the gulf; under favourable circumstances the harbour will admit a vessel of 23 feet draught. It is the great coaling station of all steamers trading to the East and Australia, but since the establishment of a coaling station at Perim harbour, at the entrance to the Red sea, many prefer to coal there, as they are not subject to delays from bad weather nor other circumstances, as is sometimes the case at Aden. Masíra channel, within Masíra island, situated about 150 miles south-westward of Ras-al-Hadd, affords sheltered anchorage for vessels of moderate draught, but the channel is somewhat intricate, and as there is little or no trade, is seldom visited. With the exception of the coast between cape Bab-el-Mandeb and Aden, and the approaches to the gulf of Masíra, there are but few outlying dangers, and temporary anchorages may be taken under the lee of most of the prominent capes.

The rainy months are November to February, and eastward of Ras Rehmat, also July and August, the temperature ranging from 68° to 80°. The hot months in the gulf, are May and September, when the winds are light or calm; the temperature then ranges from 84° to 95°. On the African coast, during the hot season, with a land breeze blowing, the temperature will sometimes rise to 110°. (See page 12.)

The number of the inhabitants, given with the account of the various tribes and villages, refers to about the years 1835–40, unless otherwise mentioned, no later information being available.

WINDS.—The winds in the gulf of Aden are governed by the monsoon prevailing in the Arabian sea. At the commencement of the south-west monsoon, about the middle of May, they are light and variable, but from June to September westerly winds prevail, blowing strong at times out of the Red sea and through the gulf, occasionally as far as Sokótra, into the south-west monsoon of the Arabian sea. During the whole of the north-east monsoon the winds are from N.E. on the Arabian shore to East and S.E. on the African shore, blowing into the Red sea as a south-east wind for about nine months of the year, or from September to May.

The SOUTH-WEST MONSOON commences in the Arabian sea, about the middle or end of April, and continues to the end of September, liable to a variation of from 10 to 15 days, being sometimes earlier, sometimes later, but is not felt in its full force until May or even June; it continues in full force during the months of June, July, and August, blowing stronger and steadier, and accompanied by a heavier sea in the open sea than on the coasts. Near the Hindustán coast, the wind is variable in direction, and blows in squalls, accompanied by heavy rain, mostly from the westward of north. On the Sind coast, strong west-south-westerly winds set in about the beginning of April, causing a heavy swell; strong westerly winds blow at the same time to the westward of Ceylon, and north-westerly winds at the lower part of the Malabar coast.*

On the eastern coast of Africa the wind blows very strong from the S.S.W., and continues with full force from that quarter through the channel between the island of Sokótra and Ras Asír (cape Guardafui), and thence across the gulf of Aden to Ras Rehmat (which signifies in Arabic the cape of Wind's Death), a cape south-westward of Makalleh. On this line a vessel generally enters the monsoon when proceeding from the Red sea to the eastward.

Within the gulf of Aden, that is, between the meridians of Ras Asír and Bab-el-Mandeb, the winds, during the south-west monsoon season, are very variable; as a general rule, they are freshest by day

* See Admiralty Atlas of Wind and Current charts for Pacific, Atlantic, and Indian oceans.

and lightest by night. About the end of April, before the monsoon has regularly set in they vary from E.N.E. to S.E. and South with clear weather, but hazy weather is sometimes experienced ; close in-shore, land winds are occasionally felt from 4h. to 8h. am. June is a very unsettled month, the wind uncertain, weather at times clear, but generally hazy ; in the morning it is either calm, or there are very light airs, which sometimes increase towards noon to a fresh breeze from the southward, occasioning a long swell on the Arabian coast. Towards the middle of the month, and in July and August, between the strait of Bab-el-Mandeb and Burnt island, strong westerly or south-westerly winds may be expected ; these blow out of the Red sea as a north-west wind, sometimes enabling a vessel bound eastward to reach the monsoon in the Arabian sea ; but as a general rule she will lose the wind before reaching Ras Rehmat, and will not fall in with it again until it bursts from the southward through the channel between Sokótra and the mainland of Africa.

Moderate southerly winds may also be expected during these months, blowing only during the day, declining into a light air at night. In the evening, after the southerly wind dies away, severe land squalls are not unfrequent on the Arabian coast, which, rising in a thick cloud of dust, especially on the low coast, give ample warning to the seamen. There is always a long southerly swell on the Arabian coast at this season.

Near the coast of Africa, from Ras Asír (Cape Guardafui) to the westward, at this season, heavy land squalls are experienced from about S.S.W., and generally come off between midnight and daybreak, lasting about an hour, frequently followed by a calm, and as frequently by a westerly or west-south-westerly breeze. These land winds are always parching hot, and very disagreeable.

In September the westerly winds cease, and land and sea breezes prevail, as also in the month of October. The nights are calm and sultry.

On the east coast of Arabia, from Kosair to Ras-al-Hadd, the south-west monsoon sets in late in May and ceases towards the end of August ; the sea is not usually so great as that experienced in the open sea, or near the western coast of India, and the sky is generally clear, but weather hazy. Southerly winds will frequently set in early in March, and blow very fresh ; these must not be mistaken for the monsoon, as they are followed at the end of the month and

After *line 12, page 5, read*:—This does not apply to slave dhows, which frequently run through the strength of the monsoon.

in April by light and variable winds along the whole line of coast. May is a doubtful month.

In the vicinity of Khorya Morya bay and islands, the south-west monsoon sets in with a gale of wind, thunder, lightning, and rain.*

The monsoon is in its full force from June until towards the latter end of August; it blows strongest, and the sea is heaviest, on that part of the coast between Ras Merbat and Masíra island, especially in Khorya Morya bay, and particularly in the month of July. During these months the Arabs do not venture to sea; the larger boats run up the coast early in June, after the first burst of the monsoon, and also towards the latter end of August, when they consider the monsoon to be over.

In the month of September the winds are moderate from the westward and southward. In October, light variable breezes and calms prevail; in-shore, land and sea breezes are sometimes experienced, and occasionally, at night, a passing shower of rain. As a general rule, rain seldom falls on this coast, except in the province of Dhofar and in the gulf of Aden; but heavy dews may always be expected.

The atmosphere in the south-west monsoon is generally very hazy and the land consequently not visible till very close, rendering it necessary to pay great attention to the lead. On making the coast at the north-east point of Africa during the south-west monsoon, additional signs of being near the land are the gradual change in the colour of the water from blue to dark green, and the alteration in the direction of the swell, caused by the prominent Ras Hafún.†

The NORTH-EAST MONSOON commences in the Arabian sea, about the middle of October, and prevails during the months of November, December, January, and February, after which the winds become light and variable, until the setting in of the other monsoon. It blows a steady moderate breeze from the north-eastward, with fine settled clear weather, and a comparatively smooth sea.

Within the gulf of Aden the north-east monsoon commences early in November, the prevailing winds being East and E.N.E., blowing fresh at times. At the end of December, or early in January, it frequently blows a moderate gale with heavy rain. In January, February and March, easterly and east-north-easterly winds are common, increasing in strength towards the strait of Bab-el-Mandeb. The weather is generally clear and pleasant; thermometer ranging

* Report by the natives

† See page 16.

from 68° to 80° Fahrenheit ; rain may sometimes fall, but not in any great quantity. These are the three principal months for trade.

On the east coast of Arabia, light and variable winds are experienced during the month of October. In November, between the island of Masíra and Ras-al-Hadd, light land winds of short duration, and sea breezes from S.E. to South, generally prevail ; but to the southward and westward of Masíra, land winds are rare. A strong breeze from N.E., with a short chopping sea, is by no means unusual during this month and early in December, and is always looked for by the native navigators.

During the months of December, January, February, and part of March, the north-east monsoon blows along the whole line of coast, varying with the direction of the coast line. At a distance from the coast it blows from N.E., to E. by S., with clear pleasant weather, and free from squalls and rain ; but near the coast the atmosphere is generally hazy, particularly when land winds are blowing. Fogs are also prevalent in the vicinity of Ghubbet Hashish and the gulf of Masíra.

Belats or strong land winds may be expected from the middle of December till the middle of March, between Ras Sakar and the island of Masíra ; they blow from North to N.N.W., and last from one to three days, and at times even as long as seven days. Indication of their approach is generally given by a faint hazy arch over the land the previous evening, or by the wind shifting towards the land, sometimes in sudden gusts, early in the night.

The commencement of the Belat is frequently accompanied by a dense sandstorm, especially when near the Arabian coast. This presents all the appearances of a thunderstorm, but the colour of the cloud is a dark red. The sand which is almost impalpable, penetrates everywhere, and affects the eyes most unpleasantly. The air is thick while the sandstorm lasts, and objects are obscured at a short distance.

Belats nearly always set in between midnight and 4h. a.m., commencing with a light breeze, and increasing to a moderate gale in about an hour, blowing hardest on the succeeding days between 9 p.m. and 9 a.m., and usually cease about noon, as suddenly as they commenced.

They are very dangerous to sailing vessels that may happen to be close in-shore, where they will occasionally, during the night, die

away to a calm, and remain so about an hour, when heavy gusts will blow down from the mountains, at intervals of a few minutes, succeeding each other for five or six hours. These gusts give no warning, except the noise they make passing over the water, and if not prepared for them, are sufficiently strong to dismast a vessel. Off-shore, a high sea is raised by these winds. In some years, they may seldom occur, while in others they are frequent and very violent. Belats are frequently succeeded by strong south-easterly winds, which bring with them a considerable swell.

The winds and weather in the bay of Khorya Morya appear to be more boisterous and variable than on any other part of the coast; the belats are more furious, and gales from S.S.W. are common during the months of February and March; the changes of wind are sudden, and give little or no warning. The atmosphere is always hazy during the belats.

About Masíra south-easterly winds are more prevalent than any others in these months, varied occasionally with a moderate north-easter. Fresh southerly breezes, of two or three days' duration, may be experienced occasionally in the gulf of Masíra.

From the middle of March till the end of April, the winds are light and variable along the whole coast; land and sea breezes are felt in-shore. To the northward, about the gulf of Masíra to Ras al-Hadd, north-easterly winds become lighter, and south-east and south-west winds more frequent.

Too much confidence must not be placed in the above remarks on the winds in the neighbourhood of Masíra, for although the winds most likely to be met with are therein laid down, experience proves that the seasons are anything but regular; frequently in the same month in different years, totally opposite winds may be experienced.

GALES.—No gales of any strength are likely to be experienced on the east coast of Arabia or in the gulf of Aden, beyond those mentioned in the remarks on the monsoons, or in the following paragraph.

HURRICANES or CYCLONES are happily of rare occurrence in the Arabian sea, those of which there is any record have been chiefly confined to the western coast of India; there are however a few exceptions, namely: On June 8th–10th, 1836, the E.I. Co.'s sloop of war *Ternate* experienced a heavy gale, when 180 miles E. by N. of Ras-al-Hadd, was partially dismasted, and threw her

guns overboard. In October 1842 a similar cyclone crossed the sea, but was not felt within 180 miles of the Arabian shore. In April 1856, the P. and O. Co.'s steamer *Malta* and the ship *Haddington*, suffered much during a violent hurricane south of Khorya Morya bay, and the E. I. Co.'s steamer *Queen* was nearly lost at the same time.

In April 1847, a furious cyclone occurred on the western coast of India, sweeping the whole coast as far north as Bombay, and causing a considerable amount of damage to shipping. At the same time, or within two days of its passing over Bombay, Maskat was visited by a similar tempest of a very violent nature, partaking of all the features of a cyclone; it caused great damage to the shipping in the cove, driving several vessels on the rocks; the town also suffered severely. This cyclone gave no warning of its approach, beyond the clouds being tinged with red at sunset, and a closeness in the atmosphere, nor did the barometer fall to any great extent.

The latest cyclone recorded is that which traversed the gulf of Aden between June 1st—3rd, 1885. Its centre appears to have passed over the north part of Sokótra at about noon of the 1st, being met with at about 50 miles northward of Ras Asír, at midnight, by the French vessel of war *Le Fabert*. Its track from thence, westward, appears to have been about the middle of the gulf, passing some 50 miles southward of Aden at about 3 p.m. on the 3rd June; thence towards Tajúra gulf passing southward of Obokh about 9 p.m.; the progress of the cyclone from Ras Asír was thus about 10 miles an hour. The wind was from N.E. to East over the whole northern portion of the gulf, and at Aden between the hours of noon and 3 p.m., the velocity was registered from 90 to 50 miles per hour; $2\frac{1}{2}$ inches of rain fell on that day. The damage to the shipping at Aden, fortunately was slight, but many lighters were sunk and stranded, moorings dragged, and vessels thereby placed in great peril; the sea breaking the whole distance between the light-vessel and the shore. At Obokh, the wind was fitful on the 3rd, settling at East about 4 p.m. with continuous rain, shifting to South at 9 p.m. and then to S.W.

In the gulf of Aden the sea near the path of the storm was terrific; the French vessel of war *Renard* left Obokh, about 4 or 5 hours before the storm reached that place, and foundered; the German vessel of war *Augusta* also foundered near Aden, many other steamers and small vessels also disappeared, portions of the crews being picked up by passing vessels.

The cyclone was preceded by the usual threatening appearance of the weather, by thunder, continuous lightning, and heavy rain, and in some cases by a falling barometer. At Aden, the barometer gave little or no warning, but an unusual swell set into the bay without any apparent cause. Near Perim these threatening appearances, with a halo around the moon, and uneasiness amongst the sea birds were noticed on 1st June, but no barometrical disturbance, nearly two days before the cyclone reached that neighbourhood.

These tempests are the more dangerous from the difficulty in prognosticating their approach, which can seldom be done with any degree of certainty; the usual signs of stormy weather should, however, never be neglected, especially at those seasons they are most likely to be experienced, which is about the change of the monsoon.*

CURRENTS in SOUTH-WEST MONSOON.—The currents in the Arabian sea at this season are regular in direction, but their velocity depends much on the force of wind and local circumstances. The general course of the current in the middle of the sea is about East, inclining to S.E. as it nears the western coast of India; its velocity averages one mile per hour.

On the eastern coast of Africa, southward and eastward of Ras Asir, the current, though variable, generally sets northward along the coast at a velocity of 2 to 4 miles per hour, the maximum rate being reached at times in July and August, passing through the channel between Sokótra and the north-east point of Africa, at about the same rate, and pursuing thence a north-easterly course until it joins the current setting along the Arabian shore out of the gulf of Aden, which runs from one to 2 miles per hour. In the offing its direction will vary from North to E.N.E., with velocities up to 3 miles.

At Ras Asir, a branch of the current sets close round the cape to the westward and close along the African coast at a rate of about one mile per hour, to Ras Khanzir, near the meridian of Aden, where it turns to the northward and unites with the current which, during this monsoon, sets out of the Red sea, and along the coast of Arabia as far as Ras-al-Hadd, with a velocity of one to 2 miles per hour.

Southward of Sokótra, at a distance of about 150 miles, is a great whirl of current, caused possibly by the interposition of the island;

* See Remarks on Revolving Storms, published by the Admiralty, 1883; also A Barometer Manual for the use of Seamen, 1884, published by the Meteorological Office, London.

or, it may be, that shoaler water exists at that spot; it commences about the parallel of Ras Hafún, when the current strikes off to the eastward to the 55th meridian, then to the southward, to the 6th parallel, whence it again curves to the north-eastward, through west, forming a complete whirl. At the northern limit the velocity is about 4 miles per hour, while at its southern extreme it is only about one mile per hour. A very heavy confused sea is created by this whirl. Care should be taken to avoid the strongest portion of the current in making the coast of Africa from the eastward, by keeping well to the southward.*

Northward of Sokótra the current, during the strength of the monsoon, sets E.N.E. about 2 miles an hour.

From about May to September inclusive, the water runs out of the Red sea, while from October to March the contrary is the case. In the strait of Bab-el-Mandeb these currents have a rate of 30 to 40 miles a day. At the change of the monsoons there is little or no current, but in the strait an irregular tidal influence is felt. The velocity of the current throughout the gulf varies from half a mile to 2 miles per hour to the eastward.

CURRENTS in NORTH-EAST MONSOON.—The current in the Arabian sea generally sets to the south-westward, its velocity depending on the force of the wind. When the wind is light there is little or no current.

On the east coast of Arabia, between Ras Madraka and Ras-al-Hadd, the current sets to the south-westward with a velocity of about three-quarters of a mile per hour.

Considerable time and attention have been paid to the currents in the gulf of Aden, and the general conclusion arrived at is, that they are set in motion by the prevailing winds, increasing and decreasing in velocity in the same ratio as the force of the wind, and influenced in some degree by the moon's age and consequent change of the tides, which are very irregular. This latter remark only applies to the coast current.

During the north-east monsoon, the general set of the current on the north shore of the gulf of Aden, and the north coast of Sokótra, is to the westward, at a rate of from three-quarters of a mile to 1½ miles per hour. On the African shore of the gulf there appears to be a counter current of about one mile per hour, from about December.

* Lieut. Taylor, I.N

In the centre of the gulf the currents are variable, but chiefly westerly; when the monsoon is blowing strong, it may run as much as $1\frac{1}{2}$ miles per hour.

Southward of Sokótra, when the monsoon is fully established, the set is south-westward, from one to 2 miles per hour.

TIDES.—The tidal wave strikes the coast of Arabia nearly at the same period, it being high water on full and change from 9h. to 10h.; but at Perim in the strait of Bab-el-Mandeb, it is high water at 8h. The time of high water is, however, irregular, varying as much as an hour. The rise and fall increases to the northward, about the gulf of Masirah, where it amounts to 10 feet, whilst between Perim and the Khorya Morya islands, it is only from 6 to 7 feet.

The tides are irregular and weak, and are frequently overcome by the current. The flood in the gulf of Aden, and from as far eastward as Merbat, sets to the southward and westward, following the direction of the coast; from Merbat north-eastward to Ras-al-Hadd, the flood sets to the north-eastward.

Instructions for taking advantage of the tides are given elsewhere in the body of the work. As a general rule they are of little assistance to a vessel in working.

The Sea on these coasts is remarkable for its occasional peculiar brilliancy at night; without any warning it will become suddenly illuminated, as if on fire, causing alarm to the stranger who may be unacquainted with the phenomenon, by giving him the idea of his vessel being amongst breakers, but on casting the lead the deception becomes apparent. It occurs in the open sea as well as near the land, and whether calm or with a breeze.

CLIMATE.—The climate of the gulf of Aden may be considered generally healthy, there being no disease peculiar to it. Chills, and also exposure to the powerful sun, must be avoided. The natives of India, when on these coasts, are subject to beri-beri, a dropsical disease, which usually proves fatal in a few months; the only treatment for it appears to be a generous European diet.

Rain.—Light rains fall in the gulf of Aden from November to about February. In Sokótra these are heavy rains in the same months, and light rains from June to August.

The TEMPERATURE of the atmosphere in the gulf of Aden varies with the prevailing winds; the following is the average range of the thermometer throughout the year.

January, February, and March.—Weather generally clear. Thermometer ranges from 68° to 80° Fahrenheit.

April.—The weather becomes warmer. Thermometer 80° to 86°.

May.—Owing to light winds and calms, it is frequently intolerably hot. Thermometer 84° to 95°.

June.—During a westerly wind the temperature is considerably lower and the change on leaving the Red Sea surprising.

July and August.—Thermometer ranges from 77° to 87°.

September.—The weather again becomes warm, owing to the cessation of westerly winds. Thermometer ranges from 84° to 96°.

October.—Towards the end of this month the nights become cooler, and at sunrise the thermometer will sometimes stand as low as 78°.

November and December.—From the commencement of November to the end of the year, the weather gradually becomes cooler as the north-east monsoon increases, thermometer ranging between 76° and 84°.

During the south-west monsoon on the African coast the heat is insufferable, especially when a land wind is blowing, at which time the thermometer will sometimes rise to 110° Fahrenheit. The natives leave the coast at this season for the mountains to escape the heat, and there is consequently a cessation of trade.

On the coast of Arabia, northward of Merbat, the weather is more pleasant than in the gulf of Aden, and during the months of December, January, and February, it is even cold at night.

PASSAGES FROM AND TO THE RED SEA.*

DIRECTIONS FOR PROCEEDING EASTWARD.

FULL-POWERED STEAM VESSELS.—BOTH MONSOONS.—Mail steamers and similar full-powered steam vessels take the direct route from Aden to the Persian gulf, Bombay, Colombo and other Indian ports, at all seasons of the year, and nearly so to the Seychelles and Zanzibar.

Small-Powered Steam Vessels.—South-West Monsoon.—Small-powered steam vessels proceeding to India and the Persian gulf during the south-west monsoon take the direct route.

* See Admiralty Atlas of Wind and Current charts for Pacific, Atlantic and Indian oceans; also Admiralty chart No. 9, showing the winds and currents in south-west monsoon.

At line 16, page 13—For 41° read 14°.

Vessels proceeding to the Seychelles or Zanzibar, having passed northward of Sokótra, stand away to the south-eastward, and cross the equator in about 70° E., or more to the westward if the monsoon permits, thence steaming to the southward through the doldrums, to fall in with the south-east trade, which will be met with in from lat. 2° to 4° S.; thence direct to Seychelles and Zanzibar, making due allowance for the strong northerly set when approaching the latter island.

Small-Powered Steam Vessels.—North-East Monsoon.—

Small-powered steam vessels after passing Aden should keep close along the Arabian coast. The wind will be found to blow generally from about E.N.E., or in the direction of the coast, but its force seldom amounts to 5. If bound to the Persian gulf she should, if possible, keep the coast as far as Ras-al-Hadd, using steam and sail, and taking every advantage of a shift of wind. If the monsoon is fresh, proceed as for Bombay, until in about lat. 41° N., long. 69° E., then steam due North to about lat. 19° N.; thence on starboard tack to Persian gulf.

If bound to Bombay, the coast should be kept as far as the Khorya Morya islands, or beyond them if the monsoon is light there; but if the monsoon is fresh the vessel may make sail before reaching the islands and stand to the south-eastward, as the wind will gradually draw to north or westward of north as the vessel advances to the eastward, enabling her with steam and sail to head for Bombay.

If bound to Ceylon, and the monsoon is fresh, sail may be made from abreast Ras Farták, in long. 52° E., though it is desirable to get a little farther north-eastward if possible.

Sailing Vessels.*—South-West Monsoon.—The best season for leaving the Red sea for India and the Persian gulf, is from May to August or September, during the south-west monsoon. Vessels bound to Bombay during those months, should, on leaving the strait of Bab-el-Mandeb, keep in the centre, or more on the Arabian shore of the gulf of Aden, to avoid the westerly current on the African shore: and on reaching the south-west monsoon outside the gulf, should steer a direct course for Keneri island, entrance to Bombay.

Vessels bound to Ceylon or the bay of Bengal during those months should shape a course to pass through the Eight Degrees or Nine Degrees channel, or on either side of Minikoi island light.

* The gulf of Aden is rarely visited by sailing vessels, but occasions may occur when these directions may prove useful.

Vessels bound to the Persian gulf during those months will find the south-west monsoon blow strong along the whole extent of coast to Ras-al-Hadd, except very near the shore, north-eastward of Khorya Morya bay, where the wind is liable to fall light at night.

Sailing vessels bound to Seychelles, having passed north of Sokótra, should stand away on the starboard tack, crossing the line if possible in about 72° E. ; thence working into the south-east trade, which should be met with in from lat. 2° to 4° S., when they may be put on the port tack for Seychelles.

Sailing Vessels.—North-east Monsoon.—From the month of September to the month of March, the passage from the Red sea to India or the Persian gulf is very tedious for sailing vessels, and seldom attempted. The passage between Aden and Bombay frequently occupied from 60 to 90 days.

Vessels leaving the Red sea for India or the Persian gulf during these months, should work along the Arabian coast taking advantage of every shift of wind. Should the current be strong in shore, it is better to stand out 60 or 80 miles from the land ; but should the wind be light, advantage should be taken of the tides and land winds in-shore, anchoring when requisite. The current, which generally sets to the westward, will sometimes set to windward for three or four days together, about the full and change of the moon. When off the Khorya Morya islands, or farther north-eastward if she can get there without much difficulty, a vessel may stand to the south-eastward, as the wind will draw to north or westward of north as the vessel makes easting, enabling her to lay her course for Bombay.

DIRECTIONS FOR PROCEEDING WESTWARD.

FULL-POWERED STEAM VESSELS.—South-west Monsoon.—Mail steamers and similar full-powered steam vessels proceeding westward during the south-west monsoon, from Colombo and the southern ports of India, take the direct route, passing northward or southward of Minikoi island light ; thence northward of Sokótra to Aden.

From Bombay, during this period, the direct route is taken by the Peninsular and Oriental Company's steamers and similar-powered vessels, unless the monsoon is unusually strong ; at which times they, as well as most moderate-powered vessels, take what is now known as the northern passage. Those of small power take the southern route, hereafter described.

The northern passage is about 50 miles longer than the direct route taken during the north-east monsoon, and is made by keeping on the parallel of Bombay until within about 100 miles of the Arabian coast, whence the course is shaped along-shore to pass about 20 or 30 miles off the headlands. Between the meridians of 66° and 60° E. the sea and wind appears to be at their height, and the sea is described as being very high; westward of 60° the sea, and then the wind, begin to abate.

The adverse current experienced on this passage averages one knot per hour; eastward of the meridian of 60° it is from a half to three-quarters of a knot an hour, and westward of 60° from 1 to $1\frac{1}{2}$ knots.

The average of thirty vessels' passages in the month of June, was 11 days, and in July and August about 13 days. Two vessels, the *Australia* and *Abergeldie*, made the passage by this route in July in eight days, while some less powerful steamers have taken 15 days.

From Seychelles and Zanzibar the direct route is taken.

Full and Moderate-powered Steam Vessels during the North-east Monsoon take the direct route from India, Seychelles and Zanzibar to the Red sea.

SMALL-POWERED STEAM VESSELS. South-west Monsoon.—The best track for small-powered steam vessels from Bombay to Aden during the months of June, July, and August, is that laid down in Lieut. Taylor's Wind and Current chart.* A course between S.S.W. and S. by W. $\frac{1}{2}$ W. from Bombay, may be made under steam, and fore and aft sails, until the 9th parallel is reached,† when the wind becomes light and the water smooth, and by steam alone the westing can be made, till in about long. 61° E. and lat. about 7° N., when the vessel may be eased off to the north-westward under fore and aft sails, and when within half a days run of Ras Asír she may be able to set reefed square sails. Care should be taken to give Sokótra and the Abd-al-Kuri islands an ample berth, by not going northward of the 10th parallel on the 53rd meridian, as the current, though very variable, generally sets strongly on to these groups. The course recommended will also avoid the heavy sea caused by the whirling current southward of Sokótra, described on page 9.

* See chart of the Arabian sea, showing winds and currents in south-west monsoon, No. 9. Almost all the rain squalls on the Malabar coast, and for 200 miles from the land, come from the northward of west, being of great assistance to steamers in making their southing under fore and aft sails. Lieutenant Taylor's Memoir.

† Moderate-powered steamers may edge more to the south-westward from lat. 12° N. but should cross long. 61° E. in lat. 7° N. as above directed.

Precautions necessary in rounding Ras Asír.—As many large and valuable vessels have from time to time been wrecked with loss of life on the coast to the southward of Ras Asír (cape Guardafui), the seamen should use the utmost caution when bound round this headland from the south-eastward, during the south-west monsoon, when the weather is stormy, accompanied by a heavy sea and strong current, and the land is generally obscured by a thick haze.

The similarity between the outlines of the headlands of Ras Jard Hafún and Ras Asír is a fertile source of disaster. Ras Jard Hafún is much the higher (2,900 feet), Ras Asír being about 780 feet, and separated from Ras Jard Hafún by a broad sandy plain of little height compared with the two headlands that bound it. In hazy weather at night the steep fall of Jard Hafún is dimly seen from the deck of a vessel, and when this bears southward of west, if Ras Asír is not sighted, as is often the case from the haze being thicker in the lower strata, and also from the light colour of the hill rendering it difficult to discern, the navigator fancies he has rounded it already, and steers to the westward into the low bay of Wadi Tuhom.*

During day-time, a gradual change will probably be seen in the colour of the water from blue to dark green. Attention should also be paid to the alteration in the direction of the swell caused by the promontory of Ras Hafún; the water gets smoother and the swell alters its direction to the eastward of south, when the meridian of that cape is passed.

It has been stated that the temperature of the sea surface decreases considerably as the coast between Ras Hafún and Ras Asír is approached, a sudden rise to a temperature of about 80° taking place only to the northward of Ras Asír, and that this rise in temperature can be safely taken as an indication that the cape is passed, and that the vessel's course can be shaped westwards with confidence.

An examination by the Meteorological Office of a large number of observations on temperature show that this is not the case. While it is true that the temperature of the sea north of Ras Asír is invariably high, the temperature to the southward, and especially off Ras Jard Hafún, is not invariably low, and any action founded on the thermometer would, therefore, be most dangerous.

* A full description of the land about Ras Asír will be found at pages 44-45. From 1876-1882, seven vessels were wrecked and three stranded in the neighbourhood of Ras Asír; in August 1885, the steamer *Dalmatia* was wrecked 15 miles southward of it (5 miles southward of Ras Jard Hafún).

To ensure safety, when the land cannot be clearly seen and recognized, especially at night, the lead and the lead alone can be relied on.

As soundings extend from 10 to 12 miles from the coast, the deep sea lead should be frequently used, and the vessel's course altered to N. by E. or N. by E. $\frac{1}{2}$ E., or if necessary more to the eastward, immediately soundings are struck, or the land sighted in dark or hazy weather. By steering to the northward as above, and by not standing into less than 35 fathoms water, the vessel's safety will be ensured, and as the water rapidly deepens northward of the parallel of the cape, the 100-fathoms line of soundings being only $2\frac{1}{2}$ miles from it, there will be no difficulty as to the time when the course should be altered to the westward.

Westward of Ras Asir, the African coast should be kept aboard as far as Burnt island; thence direct to Aden.

From the Persian Gulf to Aden, during the south-west monsoon, small-powered steam vessels should stand away to the south-eastward, passing well westward of the Lakadivh group, thence as from Bombay.

From Seychelles and Zanzibar to Aden and the Red sea, during south-west monsoon, small-powered steam vessels take the direct route.

Small-powered steam vessels during the north-east monsoon take the direct route from India and the Persian gulf, to the Red sea.

From Zanzibar to the Red sea, small-powered steam vessels may proceed through Pemba channel to take advantage of the favourable northerly current, as far as about lat. 3° S., or near Lamu, whence she may gradually steal towards the equator, and on to the Seychelles on the port tack. From Seychelles, the westerly monsoon will take her, with a leading wind, to the equator, which should be crossed in about long. 61° E., thence steaming to the northward, the wind will gradually haul through north to N.E., enabling the vessel with steam and sail, from lat. about 6° N., to fetch Ras Asir.

SAILING VESSELS. South-west Monsoon.—It is usual after the setting in of the south-west monsoon for sailing vessels bound from Bombay to Aden and the Red sea, to make what is called the southern passage, or to run down south of the equator into the

south-east trade to make their westing. After working out of Bombay harbour into 15 or 20 fathoms of water, a vessel may steer down the coast, keeping in soundings of from 40 to 50 fathoms; this is advisable to prevent running on to the easternmost of the Lakadivh group, as owing to the thick, overcast, rainy weather that may be expected, observations may not be obtainable for days together. After passing these islands, as little easting as possible should be made, as the south-east trade is fallen in with sooner to the westward than to the eastward. The wind will be from S.W. to W.S.W. with hard westerly and west-north-westerly squalls accompanied by heavy rain. A current to the south-south-eastward of from 20 to 30 miles a day will be experienced.

As the equator is approached, the weather will be finer, and the wind more moderate; and on the equator, light airs and calms, with cloudy weather, and possibly rain will be experienced. This weather will continue until the south-east trade is fallen in with, which is generally in from 5° to 6° S. latitude, but it varies; it is sometimes met in 1° S. at others not north of 8° S. or even 9° S. latitude. A vessel may run down her westing as soon as she is fairly in the trade wind, but generally vessels are obliged to pass to the southward of the Chagos archipelago.

On getting the south-east trade, a course should be shaped to pass about 100 miles north-eastward of the Seychelle islands, which may be sighted, for a fresh departure. The equator should be re-crossed on the meridian of 53° or 54° E. The trade wind will be steady and strong with fine weather, and carried as far as the equator, gradually veering to South and S.W. continuing moderate till in about 4° N., when the south-west monsoon will increase and reach its greatest force in about 10° N.

After crossing the equator, a course should be shaped to make the African coast between Ras Hafún and Ras Asír, due allowance being made for the strong north-easterly current which will be experienced on nearing the coast; *vessels should keep close to the coast until Burnt island is reached, when they should steer for Aden. It is sometimes tedious beating along the African coast when westerly and west-south-westerly winds blow strong, but a vessel should persevere, as she is more likely to get to the westward than in the middle of the gulf, or on the Arabian coast.

* See page 16, for precautions necessary in rounding Ras Asír.

Vessels should have good sails bent, for the wind frequently blows in severe gusts along the African coast.

A vessel that sails well may work up from Aden to the strait of Babel-Mandeb, during the south-west monsoon, if every advantage is taken, particularly on the springs, when the current is liable to change and set to the westward; the wind at such times is also subject to small changes; or in these months a quick passage may sometimes be made by keeping near the African coast till about 60 or 70 miles to the westward of Burnt island and then crossing over for the strait, or as near to them as the wind will admit.

From the southern ports of India, sailing vessels bound to the Red sea should stand southward into the south-east trade, and then proceed as from Bombay.

From the Persian gulf the route is westward of the Lakadivh group, into the south-east trade, then proceed as from Bombay.

From Zanzibar and Seychelles sailing vessels may steer direct for Ras Asir, and thence proceed as from Bombay.

Sailing vessels.—North-east Monsoon.—A sailing vessel bound from Bombay, or any other port on the western coast of India, from November to the end of February, should steer a direct course to pass between the Arabian coast and the island of Sokótra, and afterwards to fall in with the coast about Aden, paying attention to the lead. In these months the north-east monsoon blows fresh, especially to the westward of Sokótra, and a speedy voyage may be anticipated.

In March and April the winds are less constant in the Arabian sea than in the four preceding months, and calm at times. In these months a vessel should steer to pass to the southward of Sokótra; for early in April the north-east monsoon is nearly expended about this island, and on the coast of Arabia, and is succeeded by light breezes from the south-west and westward, with frequent calms. The current also begins to set strong to the northward about Sokótra, and between it and the coast of Africa. It is therefore advisable, about and from the latter end of March, to pass about 50 miles to southward of that island, to be enabled to reach Ras Asir with the south-westerly winds, which may then be expected.

Leaving Bombay late in April, a vessel should shape a course to pass well to the southward of Sokótra, to enable her to make the

coast of Africa southward of Ras Asír with the south-westerly wind, which she will probably meet with long before that coast is approached. The coast may be made anywhere between Ras Hafún and Ras Asír; the deep bay south-westward of the former cape should be avoided, as the danger is great if a vessel get into the bay with strong winds, or during the night. *See precautions necessary when approaching Ras Asír in south-west monsoon (p. 16).*

Having made Ras Asír, it is advisable to round it within 3 miles, to avoid being set to the northward, away from the coast, the current running eastward across the entrance to the gulf, and not round the cape, except close in. A vessel should then keep the African coast close aboard until off Burnt island, when a course may be shaped direct for the coast of Arabia about Aden; and if bound to the Red sea, work along the Arabian coast towards the strait of Bab-el-Mandeb.

Vessels bound to the Red sea from Cochin, Calicut, or other ports on the southern part of the Malabar coast, in November, December, January, and February, may steer directly to the westward through the most convenient channel among the Lakadivh islands. Vessels from Cochin should pass to the southward of Seuheli-par, keeping in about $9^{\circ} 30'$ N. latitude; but vessels from Mangalore or Cannanore should pass to the northward of all the islands. In March and April the prevailing winds between the Malabar and African coasts being from North to N.W., it is better to keep near the coast till north of mount Dilly, and pass to the north of the islands; or if the Nine Degrees channel is adopted, vessels should pass near to the islands Kalpeni and Seuheli-par, as the current sets to the southward in these months, towards the Maldivh islands.

When clear of the islands, in November, December, January, and February, a course may be shaped to pass on the north side of Sokótra; but late in March or early in April it is prudent to keep farther to the southward in latitude 9° or 10° N., as the wind admits; and in May, when the south-west monsoon may be expected, it is advisable to keep well to the southward.

From Zanzibar, a sailing vessel should make direct for the Amirantes, thence with the westerly monsoon and favourable current, southward of the Chagos, crossing the equator in about long. 83° E. The north-east monsoon will here be met with, whence course should be made on the starboard tack for the 8° or 9° channels, and direct to Red sea northward of Sokótra. Same route may be taken from Seychelles.

CHAPTER II.

SOKÓTRA AND ADJACENT ISLANDS. SOMÁLI COAST:
RAS HAFÚN TO RAS-AL-HAMAR.

VARIATION in 1887.

Sokótra, 2° 0' West. | Ras-al-Hamar, 3° 0' West.

SOKOTRA ISLAND,* distant about 125 miles from Ras Asír, 190 miles from the Arabian coast, and 500 miles from Aden, was formerly nominally under the Government of the Sultan of Kechin, on the Arabian coast; it was placed under British protection, by treaty with that Sultan, on 23rd April 1886, and the British flag was hoisted at Tamrida, the capital, on October 30th 1886. The Sultan of Sokótra has a residence on Gharriah plain, at the base of the Haggier hills, and also a palace in Tamrida.†

Situated on the highway of the traffic to the East, *viâ* Suez and the Red sea, it is almost invariably sighted by steamers making to or from the gulf of Aden, but the island being exposed to both monsoons, uncertain currents, and having no harbours in which vessels can at all times ride safely at anchor, coupled with the unfavourable character of the natives (previous to the treaty of 1876, in which the Sultan undertook to protect shipwrecked mariners and others), has caused it to be little visited.

The island is nearly 4,000 feet in height, 71 miles in length in an east and west direction, 22 in breadth, and with a coast line of about 200 miles. Abd-al-Kuri, and some smaller islands lie to the westward of it.

On the south side, the coast preserves nearly an unbroken line, but on the northern and western sides it is broken into a succession of small bays, with streams at their head, affording anchorage, but no

* Memoir on the island of Sokótra, by Lieut. J. R. Wellstead, Indian Navy, Journal R. Geog. Soc. vol. v. 194, and Bayley Balfour, M.B., in British Association Reports, 1881. See chart, gulf of Aden, No. 6a; scale, $m = 0.10$ of an inch. Also Sokótra island, No. 5; scale, $m = 0.5$ of an inch; and gulf of Aden, general, No. 1,012.

† The British Assistant Political Agent at Aden has usually made an annual visit to Sokótra.

one of them is safe at all seasons of the year. On all sides the hills rise with considerable abruptness, over a wide area forming bold perpendicular cliffs of several hundred feet in height, but at other places leaving plains, varying in breadth up to as much as 5 miles between their base and the shore. On the south side of the island is the largest of these shore plains, Nogad or Naukad, which, extending nearly the whole length of the island, is for miles covered with dunes of blown sand. The southern side, though considerably less fertile than the northern, is, towards Ras Momí near the eastern end, tolerably productive, but to the westward it is as arid and barren as the worst parts of Arabia. On the north side, these plains occur chiefly at the mouths of streams, and are the sites of the only places which may be called towns. The internal hilly part of the island may be roughly described as wide undulating and intersected limestone plateau of an average height of 1,000 feet, which flanks on the west, south, and east, a nucleus of granite peaks approaching 4,000 feet in height. These are seldom free from cloud but when the weather is clear their appearance is broken and picturesque. The whole of this hilly region is deeply cut into by ravines and valleys, which in the rainy season are occupied by roaring torrents, but the majority are empty in the dry season; there are, however, many perennial streams, especially in the central regions, but few reach the shore in the dry season. The eastern end of the island is most destitute of water. As a general remark, it may be observed that nothing, in the north-east monsoon, presents a stronger contrast than the eastern and western ends of the islands; while the former is destitute of verdure, has scanty pasturage, and, with the exception of some places near the sea, has no water than what is retained in natural reservoirs, the latter is supplied with frequent streams, its valleys and plains afford luxuriant grass, herds of cattle are numerous, and the scenery in many places is equal to that of our own country.

In the plain about Tamrida, and some parts near Kadhúp, are several beautiful valleys, with a soil well adapted for the cultivation of grain, fruit, and vegetables. In the valleys through which the streams flow, not only are there extensive groves of date trees, but a broad border of beautiful turf, occasional enclosures of jowari (millet). and (though but rarely) a plantation of indigo or cotton, indicate no want of fertility in the soil.

Climate.—Though Sokótra is situated only a short distance from the continent of Africa and Arabia, yet, from both monsoons blowing

over a vast expanse of water, it enjoys, at least as compared with them, a remarkably temperate and cool climate. The mean daily temperature on the plain in the north-east monsoon is about 70°, but in the south-west monsoon it is as much as 86°; on the plateau the temperature at night often falls to about 50°. The island has two wet seasons—June to August, and November to January. The climate on the hills is very healthy, but on the plains, especially at the change of the monsoons, fever is prevalent.

Productions.—Gum and resin-producing plants are numerous; the most important is the aloe sperryi, the Sokótrine aloes of commerce (called in the island, tayef, and by the Arabs, súbah). The island has been famous for the first-named plant from the earliest period; it grows spontaneously on the sides and summits of the limestone mountains, at an elevation of 500 to 3,000 feet above the level of the plains.

The next in importance to the aloe is the dragon's-blood tree. Like the aloe it is usually met with on the hills, rarely at a less elevation than 800 feet, and frequently as much as 2,000 feet above the level of the sea.

The wood of a tree named metayne, a kind of box tree or large shrub, which abounds in every part of the island, is so hard as to answer the same purpose as lignum vitæ is applied to, such as sheaves of blocks.

It is to their date groves, next to their flocks, that the inhabitants look for their means of support; but notwithstanding the large quantities collected, the supply is not sufficient, and a large import takes place annually from Maskat. Melons, beans, and small onions are grown; little cereal culture is indulged in, here and there a small enclosure of jowari may be seen, but the inhabitants are too lazy to cultivate to any extent, the watering requiring too much labour; a little tobacco is grown.

Vast flocks of cattle, sheep, goats, and asses are found on every part of the island; the two latter are, indeed, so numerous that the owners keep no account of them. The only wild animal is the civet cat. On the low lands scorpions, centipedes, and a large and venomous description of spider (called nargub by the Arabs) are common.

Trade.—The trade of the island is small, ghi and aloes being the chief articles of export. It is carried on by baghalahs from the Arabian

coast. These arrive in the first month of the year with coffee, rice, and other articles, which they exchange for ghi, aloes, orchilla weed, &c., which they take to Zanzibar, bringing back cocoanuts, bombé, and American piece-goods. They dispose of as many of these as possible, returning to Arabia with aloes, dragon's blood, blankets, &c.

The Sultan takes tithes of all exports, amounting to about \$1,000 a year, which, with his stipend of \$360 from the British Government, makes him a comparatively rich man.

The inhabitants of the island may be divided into two different classes—the bedouins (many of whom are tall and well made), who inhabit the mountains and the high land near the western extremity of the island, and who, there is every reason to believe, are the aborigines; and those who reside in Tamrida, Kadhúp, Kallansiya, and the eastern end of the island—a mixed population, the descendants of Arabs, Indians, Africans, Portuguese, and several other nations.

The capital and chief town is Tamrida, on the Hadibo plain, north side of the island. (*See* p. 25.)

The whole population of the island amounts to about 5,000 but many people live in caves in the hills, so that it is impossible to form a correct estimate. Kallansiya, at the west end of the island, is a penal settlement, and has but few houses.

There is a language peculiar to the island, which is in general use by those who have permanently settled there; but Arabic is spoken by the merchants when transacting business with the traders who visit the island. The dialect of the island is not now a written language, although it appears to have been so once.

Anchorage.—Excepting a few of the headlands that have projecting reefs, the shores of the island are bold to approach, with moderate depths at some distance in places. There are several anchorages, which afford protection according to the prevailing monsoon, but none affording shelter at all times. The south side having few inhabitants, and not good water, is inconvenient, but the anchorage is good. Ghubbet Kallansiya and Shoab at the west end, Ghubbet Neh on the south-west side and Bander Radresa at the south-east end, all afford good anchorage in the north-east monsoon. The north side of the island is also considered safe in that monsoon from about February. In the south-west monsoon there is fair anchorage in all the bays on the north side eastward of Ras

Kadarmeh. Bander Delaisha is by far the best in the strength of that monsoon. Tamrida is said to be more exposed to the violent gusts from the hills and to the swell, but it affords good shelter with the wind well off the land, and there is little danger with good ground tackle. These anchorages are usually on a narrow bank of sand or rocky bottom, sloping rapidly to deep water.

WINDS.—From November to January the prevailing wind is N.N.E., and is the most dangerous wind on the north side of the island, blowing in violent gusts for several days at a time.

From February to May is the fine weather season when the anchorages on the northern coast are considered safe.

In June, July, and August (south-west monsoon), the natives say it blows incessantly in hard and violent gusts on the north coast; but on the low land of the south coast, the wind is more steady and less violent, with, however, a tremendous sea and surf. In these months rain falls in showers, but not equal in quantity to that which falls during the squalls of November, December, and January.

In September, October, and part of November, light land and sea breezes are experienced, towards the latter part becoming more steady from the northward.

TIDES, CURRENTS.—The tides are very irregular, sometimes running in one direction for 16 hours, at other times only 6 hours, depending in a great measure on the strength of the winds. The flood sets to the westward on the south side, and to the eastward on the north side; the ebb sets in the opposite direction. The time of high water at the full and change varies from 7h. 20m. to 8h. 40m. in different parts: rise of springs, 6 to 8 feet. Currents close round the island are influenced by the tides and winds, generally setting with the wind, after blowing hard for any length of time. (For the offing currents, *see* page 10).

NORTH AND WEST COAST.—**TAMRIDA**, or **HADIBO**, called also Belad-al-Súltan by the Arabs, is the capital of the island. It consists of a number of white plastered stone houses, as seen in Arabia, and surrounding a large one, the residence of the Sultan. Around the town is a dense date grove. The number of inhabitants is about 400. It is prettily situated in the bottom of a deep and open bay, of the same name, about 30 miles distant from the eastern extreme of the island, and formed by Ras Hauláf to the eastward and Ras Hebák to the westward.

The small villages of Súk, Deshelanata, and Harnout lie to the eastward. Three streams of water run into the sea from the hills; one near Tamrida town, one at Súk at the foot of the sand-hill, and one between them.

Tamrida may be known by the high craggy granite peaks of the mountain range, 3,000 to 4,000 feet high above the sea, which overhang the plain on which it is situated; or if the peaks are clouded, by Jebel Owhari, a remarkable sloping sand-hill on the east side of Tamrida bay; when seen from the distance of 10 or 12 miles bearing S.E. by E., it appears like a white cliff sloping to the southward; and also by the low sandy and rocky point of Ras Hauláf. This cape may be rounded at the distance of 500 yards.

There is no danger in the bay, the soundings gradually increase from the shore, to 10 fathoms at the distance of one mile, and 20 fathoms at $2\frac{1}{4}$ miles, whence it apparently deepens rapidly. The nature of the bottom is sand and stones, with patches of mud.

Landing.—The best landing-place is on the shingle beach close to the western stream near the town, abreast some date palms. During the north-east monsoon, when the breeze is fresh from seaward, there is a heavy surf on the beach, which renders landing both difficult and dangerous.

Anchorage.—During the south-west monsoon, the anchorage in the bay is exposed to strong gusts of wind from the land, and a heavy swell rolls in when the wind is well to the westward, rendering good ground tackle necessary; the holding ground is said to be fair. It appears to be a desirable anchorage for a few days for vessels proceeding eastward, instead of returning to Aden when the south-west monsoon is unusually violent, particularly if the wind is well to the southward, when the water is comparatively smooth.*

A good position is in 9 fathoms, with Ras Hauláf bearing E.N.E., the large square house in the town about S. $\frac{1}{2}$ E.; and Ras Hebák S.W. by W. $\frac{3}{4}$ W.

The bay is particularly unsafe between the months of November to January inclusive, the first of the north-east monsoon, when heavy northerly squalls are prevalent. February to May is considered the best time.

* See plan of Tamrida, scale $m = 1\cdot13$ inches, on Admiralty chart, Sokótra island, No. 5.

There is good shelter close under Ras Hauláf, in from 5 to 6 fathoms, from all winds eastward of N.E. by N., with comparatively easy landing, whilst off the town the sea may be breaking.*

Supplies.—Tamrida is the most convenient place in the island for a vessel in want of supplies. Good water, bullocks, goats, sheep, fish, and firewood may be procured. Good aloes and dragon's-blood, in small quantities, grapes, water-melons, pumpkins, oranges, and plantains may be procured in the months of March and April.

Ras Hebák is a small perpendicular rocky point, forming the western extremity of Tamrida bay, and the eastern one of Kadhúp bay. It is a bold point, having 5 fathoms water within 500 yards of it.

Ghubbet Kadhúp is a small bay in the western part of Tamrida bay, formed between Ras Hebák and Ras Taab, in the centre of which are situated the villages of Kadhúp and Mouri, with each about 50 inhabitants. There is a salt water creek to Mouri. A vessel might anchor off here in the south-west monsoon.

Ras Taab (Tahal), the west extreme of Tamrida bay, is a low sandy point, with a reef running off about 300 yards.

GHUBBET KARMA.—**Ras Karma** (Kurmeh) is a low sandy point, forming the eastern extremity of Karma bay. A reef projects about 300 yards, continuing to the eastward as far as Ras Taab, and considerably increasing the shelter afforded by the cape.

The shore of the bay is low and sandy, but about 6 miles inland a chain of mountains surround it, with an opening near the centre, through which the natives travel across the island. To the southward of Ras Kadarmeh is another pass leading to the valley of Kallansiya. Straggling huts are scattered along the shores of the bay, the inhabitants of which possess numerous sheep and bullocks. Close to the shore of the bay, 6 miles westward of Ras Kurmeh, is Khor Hadjún, a salt-water swamp, with its entrance completely filled up; it extends about three-quarters of a mile inland, and is bounded by moderately high cliffs.

Anchorage.—The best anchorage will be found in 5 or 6 fathoms water, a little more than half a mile from the shore, with Ras Karma bearing N.E. by E., distant $1\frac{1}{2}$ miles. In the south-west monsoon it is as open as Tamrida bay to the heavy swell which is so severely felt when the wind is well to the westward.

* Captain's Remark Book, H.M.S. *Briton*, January 1876.

During the north-east monsoon there is considerable swell towards the western part of the bay.

The depths in the bay are regular, the 10 fathoms line being nearly $1\frac{1}{2}$ miles from the shore, increasing to 38 fathoms at $4\frac{1}{2}$ miles distant, beyond which no soundings have been taken. Off Ras Kadarmeh the bank of soundings appears to extend off shore only $3\frac{1}{2}$ miles. The nature of the bottom is sand and coral in-shore, and sand and shells in the offing.

Ras Kadarmeh—the western extreme of Ghubbet Karma—is a low point, and the termination of a high bluff close to it. Off Ras Bashúri, to the westward, is a remarkable pyramidal rock, of about 150 feet elevation, joined to it by a narrow neck of land 50 yards in length. Between the two points the soundings are deep close to the shore, and at a distance of 3 to 4 miles none are found at a depth of 140 fathoms. Westward from the pyramidal rock depths of 5 to 20 fathoms will be found a considerable distance from the shore.

Ras Bashúri and the coast to the westward as far as Ras Samari, a distance of 2 miles, is the most northern part of the island. The mountains, nearly 2,000 feet above the sea, rise in some places almost perpendicularly from the coast, fronted by a rocky beach. Between the two points a part of the mountain side is covered with sand.

GHUBBET KALLANSIYA (Gollonsir) is a bay affording shelter in the north-east monsoon, formed by Ras Kallansiya to the eastward, and by the bluff point Ras Baduwa to the westward. The village and mosque are situated in a grove of date and cocoa-nut trees, close to a lake of fresh water, about three-quarters of a mile south of the cape. It is a penal settlement.*

Ras Kallansiya, the eastern point of the bay, has four small granite peaks, by which it may always be known, as well as by the hills near them being covered in some places with sand. Between it and Ras Samari, to the eastward, the shore is fronted by a shoal, dry in some parts at low water, with mangroves, and extending midway between the points, one mile from the shore; off its edge are some patches of 2 fathoms water, to which the depths from seaward decrease gradually.

The depths in the bay under 10 fathoms are irregular with overfalls; and W. by N. of the village, three-quarters of a mile from the shore, is a small patch of $2\frac{1}{2}$ fathoms. The 5 fathoms line is from three quarters to one mile distant from the shore. From 20 fathoms

* See plan of Ghubbet Kallansiya, scale $m = 1.95$ inches, on Admiralty chart of Sokótra island, No. 5.

the soundings suddenly deepen to no bottom at 100 fathoms. The shore of the bay is fronted by a rocky reef to the distance of nearly 2 cables.

Anchorage.—The best anchorage for a small vessel is in 4 fathoms, off the sandy beach (the best landing-place), distant about 4 cables, with the northern granite peak on Ras Kallansiya, bearing N.E. by E. $\frac{1}{2}$ E., and the mosque S.E. by E. Large vessels may anchor in from 7 to 10 fathoms, with the mosque S.E. distant about one mile. The bay affords no shelter in the south-west monsoon.

Tides.—It is high water full and change at Kallansiya bay at 7h. 20m.; rise of springs, 8 feet. Flood sets to the eastward.

Supplies.—Good water and fire wood are plentiful; also milk, sheep, and goats, if a few hours' notice is given to get them. A few fowls, beans, and pumpkins are procurable. There is good fishing to be had. The natives will take water off in their own boats, of which they possess a small number, but ships must supply casks.

Ras Báduwa (Bedú) is a bluff point about 300 feet high, being the termination of the Jebel Mali mountains. It forms the north-eastern point of Ghubbet Shoab, and the coast from it takes a sudden turn southward. Northward of the point there are no soundings at 170 fathoms at a distance of one mile; but to the westward, there are depths of 20 to 34 fathoms for nearly 5 miles, with a rocky bottom, which affords good fish.

GHUBBET SHOAB, is a fine bay, 7 miles broad by 3 miles deep, affording good shelter with smooth water in the north-east monsoon, but at times strong gusts are experienced, rendering boat sailing dangerous. There is no known danger in the bay; the nature of the bottom is sand and rock.

It is completely exposed to the south-west monsoon.

The population of the neighbourhood formerly, was about 150 persons, who live in caverns or natural excavations, and in the village of Marthain Gibús, where there is some good water, obtained from wells. In March 1876, when visited by H.M.S *Briton*, no natives were seen.

Ras Shoab, the western point of the island, is a fine bold cape, being the termination of a high mountain. A reef extends off about 300 yards, and the soundings increase gradually from 14 fathoms at half a mile distance, to the edge of the bank, 6 miles from the shore.

Anchorage.—The best anchorage, with smooth water during north-east winds, is in 10 fathoms, over a clear white sandy bottom, three quarters of a mile off shore, with Ras Báduwa bearing N. $\frac{3}{4}$ E., Ras Shoab S.W. by W. $\frac{3}{4}$ W., and the Ass's Ears S.W. by S., off some mangrove trees, close southward of which is a lagoon of salt water, which rises and falls with the tide, although it has no perceptible communication with the sea, being separated from it by a bank of sand nearly 400 yards wide ; it extends inland, with mangrove trees on its banks, for nearly one mile.

JEZIRAT SABUNIYA is a granite islet 800 yards long, by 150 yards broad, and 160 feet high, forming in three peaks, and may be seen from 25 to 30 miles, at which distance it resembles two vessels under sail, being white. It lies with Ras Shoab bearing S.E. $\frac{1}{2}$ E., distant 9 miles, between which there is no danger, there being in mid-channel no bottom at 130 fathoms ; within half to three-quarters of a mile of the rock there are depths of 25 to 30 fathoms.

GHUBBET NEH.—From Ras Shoab the coast extends south-eastward, nearly in a straight line, for a distance of 10 miles, terminating at a sand-hill, where it forms a small bay, known as Ghubbet Neh, in which is a small village. From this sandy bay to Ras Kattánahan the coast is rocky and precipitous, and forms several small points and bays, having 4 to 6 fathoms water a few yards from it. The bottom along this part of the coast is in general sand and rock, without danger, having, however, a bank of 6 to 7 fathoms, and about half a mile wide, extending parallel to the coast, for nearly the whole distance, and about one mile from the shore, with 8 or 9 fathoms water inside, and the same depths immediately outside of it ; there are regular soundings of 20 to 25 fathoms about 5 or 6 miles off shore.

Anchorage.—Ghubbeh Neh affords good shelter during the north-east monsoon. The coast is thinly inhabited by people living chiefly in excavations in the rocks.

SOUTH COAST. **Ras Kattánahan** is an even, bold, perpendicular cape, elevated 1,465 feet above the sea. It has the same aspect whether viewed either from east or west.

Tides.—The ebb along the south side of Sokótra sets south-east about one mile per hour, depending greatly on the winds. It is high water, full and change, at 7h., but is very irregular ; springs rise 7 feet.

Jebel Kúireh, a chain of mountains of nearly the same height, extends from Ras Kattánahan 5 miles in an easterly direction. From Jebel Kúireh, the same chain of mountains, but with different names, continues nearly to the east end of the island, being merely separated by a few mountain passes, by which the inhabitants travel on foot across the island to Tamrida. The mountains generally rise perpendicularly, like a wall, from the plain between them and the sea, which is from 2 to 4 miles broad, and called by the natives Naukad. This plain affords excellent pasture for sheep and goats, of which there are great numbers. The natives of the plain are few, and much scattered, some living in huts, others in excavations in the base of the mountains.

Water.—The best water is supplied from the mountains, falling into natural reservoirs. There are wells on the plain, but the water is brackish, and only used for their flocks. Near the villages of Hakari and Deairi the water is somewhat better. The best reservoir is about 9 miles to the westward of Ras Fálánj, close to the sea, where the low sandy beach terminates in rocky cliffs, being only separated from it by a bank of shingle. This reservoir is supplied by a fine stream running through the valley between Jebel Fálánj and Jebel Sharbi, called Wadi Fálánj. A vessel in want of water, during the fine season (north-east monsoon), might procure it with ease by anchoring close in-shore, in 7 fathoms water, and at the same time obtain sheep; caution should be observed in communicating with the natives.

Anchorage.—The south coast is bold to approach, the soundings decreasing gradually towards the shore. There is no danger, although in some places there are overfalls. The edge of the bank, within 100 fathoms, between Hakari and Ras Fálánj appears to be from 8 to 10 miles off shore. A vessel may anchor all along this coast in from 9 to 12 fathoms water, over a sand and coral bottom, at the distance of about one mile.

Bank.—About 17 miles southward of the island one of the surveying vessels, during the night, crossed and recrossed a bank having only 15 fathoms, the water appearing very light coloured; it was not examined, time not permitting. The banks reported off shore are said by the natives to be not dangerous.

Ras Fálánj (Felink) is situated about 6 miles westward of Ras Radressa, the east extreme of the island; when seen from the westward it appears as a bluff cape, but, on a near approach, a low point is seen to project from it a little more than one mile, from

which a reef of rocks, some of which are above water and steep-to, extends south-eastward about 2 cables, on each side of which the coast forms a bay. The summit of the bluff is 1,505 feet above the sea, and from it the high land continues in a north-easterly direction, attaining the height of 1,920 feet at Ras Momi, from whence the land falls to a moderately elevated mountain of granite, then to several small hillocks of the same composition, finally terminating in a low and rocky point, which is Ras Radressa.

Bander Arasal (Radressa) is the bay formed between the low point of Ras Radressa and Ras Fálanj.

A rocky bank, about three quarters of a mile in extent, with some parts of it dry, and 5 to 6 fathoms between the heads, lies about one mile south-eastward of Ras Radressa. A high sea breaks on the rocks generally. The channel formed between the outer rocks and the reef extending off the point, has depths of 4 to 9 fathoms. It is rather less than half a mile wide, with rapid currents which cause strong rippings; it would therefore be imprudent to use this channel, except in case of emergency.

Anchorage.—There is anchorage in smooth water during the north-east monsoon, in about 9 fathoms, with the outer patch of rocks bearing E. by S. and Ras Radressa about N.E. $\frac{1}{2}$ E.

Ras Radressa is the extreme low eastern point of the island, forming in two small rocky points, bearing nearly north and south of each other, distant one mile. Off each point a reef extends about 3 cables, over which there are strong tide rips, and at a distance of $1\frac{1}{4}$ miles to the eastward and the northward there is no bottom at 120 fathoms, consequently, approaching this end of the island from either of those quarters, the lead affords no guide. South-eastward of the cape the depths gradually decrease towards the shore to 36 and 26 fathoms at about one mile from the dry rocks off the points.

Ras Momi, or Ras Mutláh (Arabic), cape East, is the extreme eastern, sharp, high bluff, or termination of the range of mountains running the whole length of the island, and is 1,920 feet high, being visible in clear weather at a considerable distance, when the low extreme of Ras Radressa, 4 miles farther eastward is not visible.

NORTH-EAST COAST.—**Bander Faka (Fíkeh)**, or Thleife, is a small bay on the north-east side of the island, formed between a sandy point $1\frac{1}{2}$ miles to the westward of Ras Radressa, from which a reef extends about half a mile, and Ras Deidum. In

the centre of the bay are two double sandhills. The shore is low and sandy, backed at a distance of half a mile by moderately elevated mountains. This bay forms an anchorage, protected from easterly winds by the reef, where small craft from India, on their pilgrimage to Jiddah, stop to procure water, in the months of April and May.

There is a small village here, the inhabitants of which are a poor, timid, and inoffensive race, some living in huts, and some in excavations in the hills.

Anchorage.—The best anchorage is in from 9 to 12 fathoms water, about half a mile off-shore, with the outer break of the reef off the point bearing N.E., and Ras Deidum, W. by N. $\frac{1}{2}$ N. Caution is requisite in rounding the point of the reef, for unless it is blowing fresh, the outer break of the reef, which has 5 fathoms close-to, is not always visible.

In the western part of the bay the soundings are regular, decreasing gradually towards the shore.

Supplies.—Sheep, milk and butter are procurable. Water is to be obtained from a well near the village, or from a spring which rises between the two eastern sandhills. The well is probably the best to procure water from, there being a considerable surf on the beach near the sandhill, if the wind is at all from the northward.

Ras Deidum is a rocky point of about 250 feet elevation, situated about 9 miles westward of the east point of the island; it appears to be the boundary of the luxuriant part of the island, for to the eastward a shrub is scarcely to be met with, except at the sandhills above alluded to as a watering-place, where there are a few trees; but, to the westward, both hill and valley are covered with a luxuriant vegetation. Here there is a small village, inhabited by a few poor people.

Ras Hammadareh is a low rocky point, distant 8 miles westward from Ras Deidum. North-eastward of the point, and half a mile distant, is a patch of rocks nearly dry, between which and the reef fringing the shore about 300 yards, is a depth of 5 to 7 fathoms; the patch to seaward, is steep-to.

The coast between Ras Deidum and Ras Hammadareh is low near the sea, with an occasional rocky point, and sand and shingle in the intervening bays, and there are some small date groves named Thuereh, Kleef, and Tumeh, with a fine fresh-water pool near the Kleef.

The high land is about 2 miles back from the beach, and is more than 1,000 feet high. There is no danger on this part of the coast, but it is not advisable to approach it in the north-east monsoon.

The coast between Ras Hammadareh and Ras Dehammeri is low, with occasional rocky points and sandy bays between, fronted by a narrow rocky ledge. The soundings are deep, the 20-fathoms line being about half a mile distant from the shore, from whence the bank rapidly deepens off into no bottom at 180 fathoms.

Khor Garrieh is a small creek, situated between Ras Hammadareh and Ras Dehammeri, and nearly dry at low water. Its source is several miles in the interior, with numerous date trees growing on its banks.

Bander Garrieh is a small bay, formed by the projecting point of Ras Dehammeri, where a vessel might anchor with the extreme point of the cape bearing from N.W. by N., to N.N.W., in 6 to 10 fathoms, from a quarter to half a mile from the shore, perfectly sheltered from the south-west monsoon.

Ras Dehammeri is a low narrow projecting neck of land, from 500 to 700 yards across, having two remarkable hillocks, the northern one being about 130 feet high, by which it may always be known. A rock, steep-to, lies close off the extreme point, and a rocky spit of $2\frac{1}{2}$ fathoms projects from the rocky point to the south-westward of it. There is no bottom at 280 fathoms, three-quarters of a mile northward of the point.

Bander Debeni is the anchorage, on the western side of Ras Dehammeri, protected from easterly winds. A small vessel may anchor in from 3 to $3\frac{1}{2}$ fathoms, south-westward of the rocky spit off the inner point, with Ras Dehammeri, bearing E.N.E. There is no danger in the bay except the said spit, but the anchorage does not seem adapted for large vessels; the bottom is coral or rock.

Bander Delaisha is merely a continuation of Bander Debeni, formed between Ras Dehammeri and a small point near Ras Hauláf on which is a small ruined mosque or tomb. In the centre of the coast-line is a sand-hill, and half a mile to the westward of it is Khor Delaisha, apparently closed in the dry season, but joined inland to a fine freshwater stream, with date trees on its banks.

The bay has good anchorage depths close-in, all along the shore, the 10-fathoms line being a half to three-quarters of a mile distant. It affords the best shelter of any of the anchorages during the south-west monsoon. The sand-hill bearing South or S. by E. is a good mark for the anchorage, in 7 to 9 fathoms, from a quarter to half a mile off-shore. The coast from the mosque trends westward nearly 3 miles to Ras Hauláf, with very deep water close-to.

Ras Hauláf, before mentioned in describing Tamrida bay (p. 26), is a low projecting point, rising gradually towards the interior, and forming undulating sand hillocks, covered with a prickly bush; facing the sea it has small rocky points, with intervening sandy beaches.

ISLANDS WESTWARD OF SOKÓTRA.*

The BROTHERS are two islands south-west of Sokótra, and on the same plateau of soundings. Depths of 15 to 20 fathoms extend eastward of these islands, for about 50 miles, but this part has not been thoroughly examined. In the channel, 9 miles wide, between the Brothers, there is no danger, the soundings varying between 20 and 25 fathoms, with a bottom of sand and shells, with occasional patches of coral.

Darsa, the easternmost of the Brothers, is 3 miles in length, by one mile in width, and 970 feet high, with an even table top the whole length of the island, rising perpendicularly from the sea, except on the northern side, where the north point of the island projects about 700 yards from the base of the hill. The eastern extreme of the island lies nearly due south, 27 miles from Ras Shoab, the western point of Sokótra. On the north side of the island, a bank extends about $1\frac{1}{2}$ miles, at which distance there is a depth of 13 fathoms, decreasing gradually to the shore.

Samha, the westernmost of the Brothers, lies 9 miles westward of Darsa; it is $6\frac{1}{2}$ miles in length, by 3 miles in breadth at its eastern end; it narrowing to a point at its western end. It consists of a small

* See Admiralty chart of the Gulf of Aden, No. 6A.

hill situated near its western extreme, and a mountain, the summit of which is tabular for nearly half its length; the highest point of the mountain, near the centre and towards the southern shore, is elevated 2,440 feet above the sea, and its northern extreme terminates in a well defined bluff. Its shores are rocky, and the south side rises in perpendicular cliffs from the sea.

A reef extends half a mile off the western point, and another extends half a mile from the north-east point, and there are two rocky islets off the south-east side. One mile and a half E. by N. from the north-east point, is a small bank of 13 fathoms. On the south side, the bank of soundings extends 17 miles, and to the westward to Abd-al-Kúri, increasing midway to 145 fathoms, and decreasing again towards the latter island.

Water runs from the mountain in small quantities all the year round; and occasionally, during the fine season, some people from Sokótra visit it for the purpose of fishing, catching turtle, and collecting ambergris.

ABD-AL-KÚRI is a narrow island lying midway between the west end of Sokótra and Ras Asír, being 20 miles in length east and west, by nearly $3\frac{1}{2}$ miles in width. It consists of two ranges of hills, which occupy the whole length of the island, being separated near the centre, giving it, when seen at a distance, the appearance of two islands. The eastern range is 1,670 feet high at its western extreme, while the western range is but 500 feet high. The northern coast is chiefly a sandy beach, with a few rocky points; but the southern coast is composed of cliffs rising abruptly from the sea. The bank of soundings extends from one to 3 miles northward, and 4 miles southward of the island. The inhabitants are few, and miserably poor, subsisting chiefly on shell-fish caught in the clefts of the rocks on the sea-shore; they have no boats, and are seldom visited by strangers. The island is destitute of cultivation, and the water is indifferent.

Ras Anjara, the north-eastern point of the island, is a rocky point with a sandhill, having to the southward, at a distance of one-third of a mile, a rocky islet. Between this point and the south-east point of the island, a low rocky point to which the mountain slopes, and off which are three small rocks, is a bay with a sandy beach, in which are depths of 6 to 10 fathoms at a distance of nearly one mile. North-eastward of Ras Anjara, Bacchus bank extends for 3 miles, on which the depths vary from 3 to 12 fathoms, rapidly

deepening to the northward ; a strong ripple is created on this bank when the tide is setting against the wind. The width of the channel between the east end of Abd-al-Kúri and the west end of Samha is 35 miles, in which there are no dangers except Bacchus bank just mentioned.

The north shore from Ras Anjara westward to Ras Teram, a distance of 7 miles, the coast is low and sandy, forming Bander Lón, a bay, in which are a few huts, and a well of indifferent water ; the shore close-in is fronted near the well by some sunken rocks. From Ras Teram to Ras Haimerah, a small rocky point 6 miles to the westward, the coast is formed of small rocky points with sandy beaches intervening : two miles eastward of the latter point is a sunken rock close to the shore. From Ras Haimerah the coast trends irregularly for 7 miles to the western extreme of the island.

The anchorage along the north coast is said to be indifferent, but H.M.S. *Briton*, in August, anchored in 9 fathoms sand, with Ras Haimerah S.E., and 500 feet peak S.W. $\frac{3}{4}$ W., with good holding ground.

Ras Khaisat-en-naum, the western extremity of the island, forms in two sharp rocky points, half a mile distant from each other. From the northern point, a reef of rocks with 5 fathoms close-to, and depths of 25 to 35 fathoms at half a mile distant, extends West one mile.

During the survey of this locality by H.M.S. *Fawn* in May 1877, the current was observed setting N.N.E. at from a half to $1\frac{1}{2}$ knots the hour, and numerous tide rips were seen in the vicinity of the shoal water.

Caution :—Off the west end of Abd-al-Kúri island, owing to the higher hills being some distance inland, it is difficult to estimate distances from the shore correctly. This fact should be borne in mind, especially at night, when, to ensure passing the west end of this island at a prudent distance, of not less than 2 miles, the water should not be shoaled under 40 fathoms.*

Nine miles W.N.W. of the extremity of the island is a coral bank, with 24 to 40 fathoms water, and deep soundings of 60 to 180 fathoms all round.

The South Coast.—From Ras Khaisat-en-naum the south coast of the island trends eastward 10 miles to Bander Saleh, rising in cliffs

* Commander W. J. L. Wharton, H.M.S. *Fawn*, 1877.

abruptly from the sea, and forming several points, of which Ras Hattan is a projecting bluff point $2\frac{3}{4}$ miles distant. Three miles and a half from Ras Hattan is a rocky islet close to the shore, between which is a small bay full of sunken rocks. On this portion of the coast the water is deep, there being 18 to 20 fathoms close to the cliffs, and increasing to 100 fathoms at 4 miles distance.

Bander Saleh, or Leven bay, lies on the south side of the island, immediately westward of the extreme of the high mountain. It affords good anchorage during the north-east monsoon in from 6 to 10 fathoms, coral bottom, one quarter to half-a-mile from the shore. There are a few huts and a well of indifferent water a short distance from the beach, but no supplies are to be procured. This is the narrowest part of the island, being only one mile across, formed of moderately elevated sand-hills.

From Ras Labaineh, the south-eastern point of the bay, the coast to the eastern extreme of the island is formed of steep cliffs, with from 10 to 12 fathoms water close-to.

KAAL FIRAON (Farún), or **Salts' White Rocks**, about three-quarters of a mile in length, by 200 or 300 yards in width, are two rocks divided by a narrow channel filled with sunken rocks, lying 12 miles northward of the western end of Abd-al-Kúri, and situated on the northern side of a large bank of soundings 10 miles in length; they are steep-to. The eastern and larger rock has one peak of 282 feet elevation, and two smaller ones. The western rock has also one peak of the same elevation, and one smaller one. They form from different points of view several peaks, and are completely covered with guano, which gives them a snow-white appearance; their only occupants are birds, which flock here in great numbers. The rocks are visible, in clear weather, about 20 miles; but at night they are difficult to distinguish owing to their colour.

Tides.—The flood sets northward, and the ebb southward, through all the channels between the islands westward of Sokótra, but is much influenced by the current of the prevailing monsoon; when not so influenced it is said to run from one to 2 miles per hour. At Kaal Firaon it is high water, full and change, at 8h. 20m.; rise of springs, 6 feet.

SOMALI COAST.

From Ras-al-Khyle, southward of Ras Hafún, on the eastern coast, to Zeila, the country is known by the name of Bar-e-Somál, and it is divided between two nations, who, both tracing their origin from

the Arab province of Hadramaut, are yet at bitter and endless feud with each other. The principal of these two great families is that to the eastward of Burnt island. The other extends from Burnt island, or Bander Háshan, to the Essah tribe, who reside in the neighbourhood of Zeila, and is divided into three great tribes, namely, the Haber Gerhajis, the Haber Awal, and the Haber-al-Jahleh (Haber meaning the sons of), who were the children of Isaak, the said Isaak having crossed from Hadramaut some time after his countrymen had founded the nation to the eastward, and settled at the town of Mait, near Burnt island, where his tomb exists to this day. The eldest branch, the Haber Gerhajis, was put in possession of the frontier mountains to the southward; and the other two brothers were placed on either side of them, the Haber Awal establishing themselves on the low lands from Berbereh to Zeila, and the Haber-al-Jahleh locating themselves at Karram, Ainteral, Ankór, and Hais, four small ports to the eastward of Berbereh. To the eastward of Mait, as far as Bander Zaida, are the warlike tribe of the Warsangali, which name means has brought good news; and thence to the eastward round Ras Jard Hafún, and down to Ras-al-Khyle, the country belongs to the numerous clans of the Mijjertheyn. These are the tribes on the coast. Although at constant war amongst themselves, they are friendly and obliging to strangers.

From Ras-al-Khyle to Berbereh, the Wadi Nogal extends in almost a straight line between two ranges of mountains. The happy valley is spoken of in the most glowing terms by the natives, and apparently forms their great road for trade; the people of Ogahden, Murreyhan, &c., bring all their gums, ivory, and ghi along this valley, as being the safest and least fatiguing route, and the people are described as a peaceful race, who subsist chiefly by the chase, and by their sale of ostrich feathers, myrrh, and ghi (clarified butter).

Trade.—In a commercial point of view, the Mijjertheyn and Warsangali territories are the most valuable, and quantities of gum-arabic, luban, and myrrh are collected from the sea coast villages belonging to these tribes.

To the westward of the Mijjertheyn, the Warsangali range, 4,000 feet high, affords an inexhaustible supply of frankincense, though but little gum-arabic, and no myrrh. The climate in these mountains is described as most invigorating, and the country abounds in large game, the lion being very common in those parts.

Westward of the Warsangali, the gum trees become scarce, and though there are some parts having considerable trade throughout the year, all their gums are brought from the Dalbahanti and Ogahden tribes. Sheep form the chief article of export from Karam westwards, and countless flocks are driven down almost daily, and shipped off to the Arabian coast. Berbereh is, of course, the greatest mart at one season of the year, as all the tribes collect there.

A small quantity of gum is brought into Zeila; coffee, dye, and ghi, with ivory in small quantities and ostrich feathers, form the articles of export. The average quantity of gums exported (1833) annually from the Somáli coast may be estimated at 1,500 tons, though, occasionally, after a good season, the Mijjertheyn tribe alone probably export nearly that quantity. The trading season on the coast is from the early part of October to the end of March.

The city of Harrar, in the province of that name, though hardly in the Somáli country, is closely connected with it by its commerce. It is thirteen days' (83 hours) journey from Zeila, distant about 180 miles, and twenty-two days' (156 hours) from Berbereh, distant about 286 miles. The city is described as larger than Mokha, situated in a fertile country, with a population of about 36,000.* The coffee districts are described as lying amongst a low range of mountains near Harrar, and to the southward. The quantity exported is very large, and the quality fully equal to that commonly sold at Mokha. Besides coffee, Harrar exports white cotton cloths, the cotton of which they are made is grown at Harrar; a few silk loongis are also manufactured: cardamoms, gum, mastic, myrrh, a small quantity of manna, saffron, and safflower, with the articles above mentioned, comprise the extent of the Harrah trade, so far as regards produce; but the most valuable branch of commerce was the export of slaves. The duties levied at Harrar are 10 per cent. on import and export.

In the country of the Haber Gerhajis, the principal articles of trade or produce are ghi, myrrh, in small quantities and of inferior quality, luban of the first quality, ivory, ostrich feathers, and gum-arabic, with a small quantity of sheima, or orchilla weed, and a still smaller supply of warus, a kind of saffron, used by the natives in Yemen to rub over their bodies.

* See Proceedings of Royal Geographical Society, February 1885.

Protectorate.—The sea coast from Bander Zaida (page 51) to Ras Jibúti, entrance to the gulf of Tajúra (page 68) is, by treaties made in 1887, under British protection, whilst that westward of Ras Jibúti is under French protection.

RAS HAFÚN, or “The Surrounded,” is a peninsula or prominent headland, 8 miles broad north and south, and 12 miles long east and west, and from 400 to 600 feet in height, rising in steep cliffs from the sea, and formed of sandstone and limestone. The extreme of the peninsula is perfectly flat, and the interior consists of undulating hills, deeply intersected by ravines and watercourses. The south-west point of the promontory of Hafún is high and flat, like a barn, whence it is called Barn hill; at a distance it appears separated from the rest of the peninsula, the land between being low.*

Ras Hafún is connected with the mainland by a long narrow neck of white sand, shells, and mud, with a few stunted bushes thinly scattered along it, and from its being almost an island, probably takes its name of Hafún. On either side of the narrow neck of sand is formed a deep bay, with good anchorage, according to the season. The peninsula is in the Mijjertheyn territory, and tenanted by the Aial Fatha branch of the Othman family; there are only a few miserable huts, and a population of probably 50 persons; they are friendly to strangers, and may be trusted. The water in the wells is bad. Cattle and firewood are procurable.

Hafún South Bay is best adapted for vessels during the north-east monsoon, but a change of two or three points in the direction of the wind causes a swell to roll in, and a surf to break on the beach. The bay is much frequented by the shark fishers from the Arabian coast, many of whom reside here throughout the year, merely moving their fishing boats to the other side of the isthmus as the monsoon changes.

The depths in the southern bay are regular, decreasing gradually towards the shore, being deeper to the westward than towards the peninsula, where the best anchorage is in 6 or 7 fathoms, sand, at one to $1\frac{1}{4}$ miles from the shore, with the south-west point of the peninsula bearing about S.E. On the south-east and east sides of the peninsula there are depths of 15 to 20 fathoms water close in to the cliffs, increasing to 100 fathoms at a distance of 13 miles from the cape. The nature of the bottom is sand and rock.

* See Admiralty charts :—gulf of Aden, No. 6a, and north-east coast of Africa, No. 100a; scale m = 0.25 an inch.

Hafún North Bay is clear of danger, and affords anchorage during the southerly monsoon in 7 to 10 fathoms, hard sand, but the holding ground is not very good. Near the north-west extreme of the peninsula the shore must not be approached by large vessels within three miles, as depths of 3 to 4 fathoms extend nearly that distance from the shore.

The soundings elsewhere in the bay are regular, and increase gradually from 4 to 6 fathoms close-in, to 38 and 40 fathoms 11 miles distant. The bottom is hard white sand. There is shelter in this bay from southerly winds, but it is doubtful whether a vessel could ride in safety in the full strength of the south-west monsoon, owing to the heavy swell that must roll round the point, and the violent gusts of wind blowing across the headland. These gusts of wind render it necessary to be ready to shorten sail when standing close along the cape or coming to anchor under it.* Large quantities of fish may be caught by hook and line in this bay.

Khor Hurdia, on the north side of the isthmus of Hafún is an extensive harbour, $2\frac{1}{2}$ miles wide at its entrance, and 12 miles in depth. As an anchorage it is only available for boats, the depth of water inside being only from one to $1\frac{1}{2}$ fathoms. This is probably the most unhealthy spot on the Somáli coast; its shores and the bottom of the bay are covered with decomposed vegetable matter, which, on being disturbed, gives forth a noxious gas that is perfectly sickening; yet there are many fishermen living on the sea-shore who, from long habit, have become accustomed to the exhalations. There is no fresh water in the bay, but it is said by the natives that at Khor Hashera, at the bottom of the bay, there is a stream of fresh water running into the sea. It is possible that the river mentioned in old writers as existing in the neighbourhood of Hafún may be this stream, and Khor Hashera the ancient Opone.

Trade.—During the south-west monsoon, a kind of fair similar to that at Berbereh, though smaller, is annually observed at Khor Hurdia. The merchants from Makalleh, Shuhair (Shehr), and from the Mijjertheyn harbours to the northward and westward, attend this meeting at the end of May, when their dhows are hauled up on the

* H.M.S. *Forte*, in May, during a moderate gale from the southward, was anchored in $7\frac{1}{2}$ fathoms, with north-west cape bearing west, and dragged with 70 fathoms of cable out. H.M.S. *Nimble*, at anchor three cables S.S.E. from the *Forte*, also drifted, with 60 fathoms of cable out.

beach; and a brisk trade is carried on throughout the south-west monsoon in gums, ostrich feathers, hides, ivory, and ghi; large quantities of ambergris are also brought for sale. Elephant-hunting is followed by those who have guns. A good trade might be carried on between Mauritius and Hafún in asses; these might be procured at Hafún in great number for 5 or 6 dollars each, and the voyage being so short in the north-east monsoon, would probably afford a profitable speculation.

Caution.—Several vessels have been embayed southward of Ras Hafún in the night and in thick weather; caution is therefore necessary when approaching it. (*See* p. 16.)

Tides.—It is high water, full and change, at Hafún, at 6h. 15m.; springs rise 4 feet.

The COAST from Ras Hafún to Ras Asír, a distance of 80 miles, trends nearly north, forming two large bays, which are separated by the bluff cape, Ras Ali Bash Kil; between the latter point and Hafún the shore of the bay is low and sandy, and thickly covered with bushes, bounded in the interior, at a distance of 3 or 4 miles, by a range of flat table hills, elevated about 700 feet above the sea, which gradually approach the sea at Ras Ali Bash Kil.

The soundings in the bay are regular, and shoal gradually towards the shore; the 10-fathoms line is 4 miles from the shore in Hafún bay, decreasing to a quarter of a mile at the northern extremity; the edge of the bank, or line of 100 fathoms, is about 12 miles distant from the coast. The general nature of the bottom is grey sand and shells.

Water.—There appears to be a plentiful supply of water in this bay. At 5 miles to the northward of the entrance to Khor Hurdia is Handeh, a salt lagoon, except at the head, where it is barely drinkable. There is, however, a well of good water a few yards higher up. At Dehgúbo, 8 miles north of Handeh, there is a well of good water; and 10 miles south of Ras Ali Bash Kil, in a valley formed in the table-land, there is plenty of fresh water, and the inhabitants are numerous.

RAS ALI BASH KIL, is a prominent bluff headland, rising in a steep cliff 400 feet above the level of the sea, with depth of 20 fathoms water at one mile distant.

Ghubbet Binna (Banneh).—Between Ras Ali Bash Kil and Ras Jard Hafún the coast forms a deep bay called Ghubbet Binna;

for the first 12 miles the shore is low, sandy, and thinly covered with bushes, with a range of tabular limestone mountains in the rear, elevated 2,700 feet above the sea, descending to the plain in steep precipices, and intersected by fertile valleys. North-westward of this range is Jebel Guraleh, a still higher range of mountains, elevated 5,000 feet above the sea, and terminating at Ras Jard Hafún. On this range of mountains, 11 miles from Ras Jard Hafún, and $3\frac{1}{2}$ miles from the beach, is a quoin-shaped peak, 3,000 feet high, the bluff being to the north-eastward, which is very conspicuous, and may be seen at a great distance in clear weather.

Immediately to the westward of Ras Ali Bash Kil, is Khor Banneh, an extensive lagoon of salt water. At 12 miles to the southward of Ras Jard Hafún, and close to the beach is Khor Abdihán, another lagoon of salt water, with fresh water in the upper part, where it is fed by a stream running from the valley.

The soundings in the bay are regular, and there is no danger, the depths increase gradually from the shore, to 20 fathoms at from 2 to 5 miles distance; the general nature of the bottom being sand and shells off-shore, and rock close-in.

Anchorage.—There is good anchorage, in not less than 7 fathoms, and shelter, from southerly winds, off the small village in the south part of the bay, being free from the heavy squalls off the high land.

RAS JARD HAFÚN, or Shenarif, is formed by the bluff termination of lofty table land, 2,900 feet in height.* This table land on its seaward face falls precipitously for about 400 feet, and immediately over the cape the ground from the foot of the precipice is much broken in its slope to the sea, with deeply-scored sides and some remarkably formed rocks. The cape itself is rounded, rocky, and bold to approach, there being from 10 to 16 fathoms water close-to. It is in appearance a remarkably bold and rugged headland, especially when seen from the south-eastward. The land about it and to the southward is dark, and in great contrast with the whitish-brown colour of that between it and Ras Asír. Quoin hill, about 10 miles southward of Jard Hafún, is a conspicuous mark from the southward; and a rounded sandhill near the coast, at 17 miles southward of Jard Hafún, with a considerable tract of sand extending northward of it and well up the hills at the back, is also a good mark, being the only white sand in this neighbourhood. From Jard

* See sketches on chart, No. 100a.

Hafún, northward, the high table land of which it is the extreme, takes a north-west direction for about 6 miles, at which distance there is a deep ravine, with a sharp-peaked hill, 2,760 feet in height, northward of it. Between this peak and Ras Asír the hills recede still farther from the coast, the space between being occupied by an undulating light coloured ground resembling hard sand, and rising in a gradual slope from the sea. It is this receding of the high land, combined with the light colour of the slope intervening between it and Ras Asír, that causes the difficulty of making out any land to the northward of Jard Hafún at night, and which has led to so many disasters.

Wadi Tohum is a fertile valley $4\frac{1}{2}$ miles north of Ras Jard Hafún, full of large mimosa trees, with a stream of water running through it. Near its entrance, which is apparently blocked up in the dry season, are numerous habitations, and a cliff about 160 feet in height extends nearly one mile southward from it, beyond which the shore is sandy to Jard Hafún. Northward of Wadi Tohum, to near Ras Asír, the shore is sandy, with the exception of a small cliff about midway.

RAS ASÍR (CAPE GUARDAFUI), the north-eastern point of Africa, 10 miles northward of Ras Jard Hafún, is a precipitous rocky cape 780 feet in height, of a whitish brown colour, and when seen from the south-eastward appears with a moderate slope towards the sea; the land westward of Ras Asír is a level ridge, the sand hill at 3 miles distant being apparently the end of it. This sand hill is in no way remarkable from the south-eastward, being but little above the ridge. About 3 miles further westward is a steep bluff, forming the eastern extreme of a range of hills facing the north coast, and not far back from it. The cape is frequently enveloped in thick haze, rendering it deceptive in estimating its distance. Approaching from the north-eastward Ras Asír may be known by the light coloured sand on the top, and the sandy bay to the westward. The cape is steep-to, with 12 fathoms water close in-shore, and soundings extending 18 miles eastward, there being about 100 fathoms at that distance; to the northward the bank of soundings only extends $2\frac{1}{2}$ miles.*

Current.—Care is necessary in making the cape from the southward during the south-west monsoon, the current setting up the coast strong to the northward, and close round the cape to the westward; but at a short distance it continues its course to the northward and eastward. See directions for approaching the cape, page 16.

* See Admiralty chart, No. 100 a., scale $m = 0.25$ of an inch

Tides.—It is high water, full and change, at Ras Asír, at about 6h. 15m.; springs rise 6 feet.

Anchorage.—In the bay immediately to the westward of Ras Asír is good anchorage in 9 to 10 fathoms, and protection from southerly winds, with Ras Asír bearing about E. $\frac{1}{2}$ N. and a high bluff S. $\frac{1}{2}$ W., more to the westward the ground is rocky. The sand hill in line with the west extreme of a range of hills bearing about S.W. by W. leads to anchorage in $4\frac{1}{2}$ fathoms.

Supplies.—Turtle may be obtained from the natives at this anchorage; bullocks and small sheep brought from Wadi Tohum, may also be purchased; fish are plentiful and good; the best place to haul the seine is off the little Somáli village near the beach in a small bay. Water is not to be obtained.

The COAST from Ras Asír extends 30 miles in a westerly direction to Ras Alúla, in a nearly straight line: there are some small projecting rocky points forming small bays between, but no dangers exist. The soundings rapidly increase in depth from 10 fathoms to the edge of the bank, which off Ras Asír is distant $2\frac{1}{2}$ miles, increasing to $6\frac{1}{2}$ miles off Ras Bóleh, and decreasing again to 2 miles off Ras Alúla.

The mountains, 1,800 to 1,600 feet in height, approach close to the sea, with the exception of some two or three intervening spaces, where the shore is sandy, covered with bushes. Throughout the extent of coast there appears to be no villages. At Baraida, 17 miles from Ras Asír, is a lagoon of salt water, on the sandy plain near the sea; and at Moyah Bóleh (Bouah) is another lagoon, and several wells of excellent water about 100 yards from the beach; and water in any quantity can be obtained by digging holes in the sand near them to a depth of 3 or 4 feet. Bóleh can be distinguished by the date palms.

RAS ALÚLA is a low, sandy, but prominent cape; just westward of it is the narrow entrance to Khor Galweni, or Great lake, an extensive lagoon, which is covered with mangrove bushes nearly over its whole extent. Boats can enter the lagoon at all time of tides, but large dhows must wait for high water. A river falls into the khor at its southern extreme, which during the rainy season must be very deep, the bed being 250 feet in depth by 900 feet in width. In the dry season the river is navigable for boats 3 or 4 miles from the sea,

and farther inland there are pools of fresh water in its bed. The plain from Ras Alúla gradually ascends until it reaches the high range of mountains in the interior.

Bander Alúla, a small village and anchorage, lies about $1\frac{1}{2}$ miles westward of Ras Alúla. The village consists of about 200 houses, three of which are of stone, the largest being occupied by the Sheikh. The water at the village is bad, but cattle, except after periods of drought, and abundance of firewood are procurable. Quantities of fish may be taken with the seine on the west side of the spit; sharks are numerous.

Anchorage.—There is anchorage in about 9 fathoms on the edge of the coral ledge, 600 to 800 yards from the shore, with the Sheikh's house flagstaff bearing S.E., Ras Galweni (west side of entrance to the khôr) bearing N.E. by E. $\frac{1}{4}$ E, and Ras Filuk W. by S., sheltered from easterly winds.* Landing is apparently easy.

Tides.—It is high water, full and change at Alúla at 6h. 45m.; springs rise 6 feet.

The COAST.—From Ras Alúla the coast trends west-south-westward 15 miles, as far as Ras Filúk, when it turns 7 miles to the southward to Bander Maráyeh. The shore, with the exception of Ras Filúk, is low and sandy, with an elevated stony plain between it and the range of mountains in the interior. The bank of soundings extends but a short distance from the shore, being 5 miles in width to the northward of Ras Filúk, and only $1\frac{1}{2}$ miles at Bander Filúk; the depths increase rapidly from the shore, to 100 fathoms at those distances.†

RAS FILÚK, or more properly Ras-al-Fíl, and also the Mons Elephas of the Romans, so called from its resemblance in shape to an elephant, is a prominent hill elevated 800 feet above the level of the sea, at 9 miles westward of Ras Alúla, and whether viewed from the eastward or westward has the appearance of an island, the land about it being low. It is generally called by the natives Ras Belmook, and may be seen at the distance of 40 miles in clear weather. The water

* Lieutenant H. Keane, H.M.S. *Kingfisher*, 1885.

† Auckland bank was reported in August 1841 by Lieutenant Hewett, Indian Navy, as an extensive bank having overfalls on it from 17 to 13 and 22 fathoms, in latitude $13^{\circ} 30' N.$, and longitude $50^{\circ} 9' E.$ The spot has not been thoroughly examined.

is deep off it, there being 18 and 20 fathoms within a quarter of a mile. In the valley to the eastward is a lagoon of salt water, and the bed of a watercourse.

The low sandy point 6 miles south-westward of Ras Filúk proper, where there is a depth of 5 fathoms at one mile from the shore, is also called Ras Filúk; and the ancients gave the name of Mons Elephas to the collective headland of which Ras Alúla is the most prominent point. Fronting this low point, a coral bank with 20 fathoms and less, extends nearly 2 miles off-shore.

Anchorage.—Close westward of Ras Filúk is a small but deep bay, with good anchorage in 5 fathoms water, with the point bearing N.E. by E. distant 6 cables, with shelter from east or southerly winds. From this position towards the point the soundings are regular, but to the southward reefs extend some distance off-shore.* The depths are from 8 to 10 fathoms a little further out.

Bander Filúk is a small fort and village, situated close to the beach, and 10 miles southward of Ras Filúk. Immediately northward of the village is the entrance to Khor Filúk, a lagoon about 10 miles in length, and full of mangrove bushes, with only a low narrow ridge of sand between it and the sea. Gahseli and Galseh are two small villages, each with a fort, close to the beach, between Bander Filúk and Bander Maráyeh. The anchorage off them is bad.

Anchorage.—The anchorage off Bander Filúk is in 6 or 7 fathoms, with the fort bearing East; a good scope of cable is necessary to prevent dragging the anchor off into deep water.

BANDER MARÁYEH is the principal village on this part of the coast; but it is almost deserted in the hot season. A considerable trade in gums is carried on from here, about September, principally by Banyan traders. It is situated close to the beach, 7 miles southward of Bander Filúk, and is defended by five forts. From a distance it may be found by steering for Jebel Maráyeh, which is easily distinguished, from its hummock shape. The town lies at its base and to the eastward of it, or more immediately at the foot of a red precipitous hill about 900 feet high, which has a large natural hole through it close to its summit. Northward of the town is a mangrove swamp, and the bed of a watercourse.

* H.M.S. *Lynx*, January 1871.

Anchorage off the town is good, in from 5 to 10 fathoms, sand, with the Mosque S.S.E. $\frac{1}{2}$ E., a half to three-quarters of a mile from the shore ; the soundings increase gradually to 20 fathoms at $1\frac{1}{4}$ miles distance, after which they become irregular with overfalls.

Supplies.—Good water may be obtained from a well 2 miles inland ; cattle and firewood are generally procurable in abundance.

Jebel Maráyeh, a mountain peak 4,000 feet in height, lies southward from the town, being the spur of a noble range of limestone mountains, covered with the frankincense tree, which extend inland to the eastward, and attain the height of 5,000 feet ; the range also extends westward along the coast for about 23 miles, where they approach the sea, and vary in height from 1,500 to 3,000 feet.

The Coast from Bander Maráyeh to Ras Kórai, a distance of 47 miles, trends in a westerly direction, slightly concave, with small projecting rocky points, and bays between them. The shore is bold to approach, there being no shallow water except off Bander Khor, where a bank of 3 fathoms extends one mile. The edge of the bank of soundings varies in distance from the shore from 2 to 6 miles, with a sandy bottom. At 7 miles to the westward of Bander Maráyeh, and close to the beach, is the small village of Dúrbo, (Aurbah), which has a fort for its defence ; and 3 miles farther to the westward is a small rocky point called Ras Dúrbo, which is not distinguishable from any other part of the coast.

BANDER KHOR is situated 12 miles eastward of Ras Kórai. A bank of 3 fathoms extends off the river for a distance of three-quarters of a mile, outside which there is good anchorage in from 6 to 10 fathoms, with off-shore winds.

The town is situated 4 miles from the sea, on the banks of the river, the mouth of which is dry at low water, but it is navigable for small boats up to the town at high water. During the rainy season, the river discharges a quantity of water ; the entrance may be known by a low white sand-hill to the eastward, close to the beach, and being between two high ranges of mountains. The land one mile inshore is tabular, and elevated 400 feet above the sea. On the western side of the entrance is a small village and fort : and 3 miles southwest of the fort are some ruins and a small lagoon.

A considerable trade is carried on here in gums, which, as at Bander Maráyeh, is chiefly enjoyed by Banyan traders. Here, as at all the towns on the coast, sheep, firewood, and water are to be procured.

Ras Kórai (Gorí) is a high rocky cape, 60 miles westward of Ras Filúk, being the termination of a range of lofty table mountains, which stretch away to the eastward, and are elevated 4,600 feet above the level of the sea; the sides of these mountains are clothed with large frankincense trees. On the western side of the cape is Boreh village, with a fort for its defence. The soundings off the cape are deep, and the 100 fathoms line is distant from the coast one mile.

Ras Hantára (Antareh),* a high rocky cape, 9 miles westward of Ras Kórai, is the termination of another range of lofty tabular mountains, Jebel Hantára, thickly covered with the frankincense tree, and elevated 5,000 feet above the sea; the shore between the two capes is sandy and covered with bushes, with depths of 20 fathoms and less, extending off about 2 miles.

From Ras Hantára the coast trends westward 16 miles to Ras-al-Hamar, and is divided by Ras Abúrgabeh, a rocky point. The shore between is sandy, and backed by a range of hills from 800 to 1,500 feet elevation. Close to the westward of Ras Abúrgabeh are two small villages, and Bander Baad (Barthe) fort, at which sheep and water are procurable. With the exception of a small 2 fathoms bank half a mile northward of the western village, the soundings are regular, and there are no dangers; the depths increase gradually to 20 fathoms, sand, from which they rapidly deepen. Between the villages and Ras Abúrgabeh there is good anchorage in 9 and 10 fathoms, from $1\frac{1}{4}$ to $1\frac{1}{2}$ miles off-shore, but it affords no protection, except from off-shore winds.

Ras-al-Hamar is a prominent, sharp, rocky point, about 300 feet high, terminating a narrow ridge of hills. Depths of 4 to 5 fathoms will be found nearly one mile northward and north-westward of the point, with 8 to 10 fathoms beyond that distance. On the western side of the point is Khor Maraio, an inlet, into which a stream of fresh water from the valley discharges after heavy rains. The bed of this stream is dry in the dry season, but water is always procurable by digging holes in it.

* See Admiralty chart, Africa, north-east coast, No. 100*b*; scale, $m=0.25$ of an inch.

CHAPTER III.

SOMÁLI COAST. RAS-AL-HAMAR TO STRAIT OF BAB-EL-MANDEB.

VARIATION in 1887.

Burnt island $3^{\circ} 30'$ West. | Berbereh $4^{\circ} 10'$ West.
 Gulf of Tajúra $4^{\circ} 30'$ West.

The **COAST** from Ras-al-Hamar, trends in a westerly direction for 40 miles to Ras Adaddo (Hadádeh); it is slightly concave forming a bay, generally low with occasional hills, and backed by the high mountain range Jebel-Warsangali, an enormous ridge of limestone averaging 6,500 feet in height, and perfectly level along the summit. The range extends as far west as Máit. At the extremities, and towards the lower range of hills in front, it descends in steps, which form perpendicular precipices of from 800 to 1,000 feet. The mountains are covered with frankincense and myrrh trees, as are all the hills about Bander Kórai. The soundings on this portion of the coast appear regular, but deep: the 10 fathoms line is from a half to one mile distant from the shore, and the edge of the bank of soundings is from $1\frac{1}{2}$ to 4 miles, being very steep; the soundings in some parts falling rapidly from 20 to 100 fathoms. The bottom is rocky close in-shore; sand, and sand and shells farther out*.

BANDER KÁSİM (GHÁSİM), a town and anchorage $7\frac{1}{2}$ miles to the westward of Ras-al-Hamar, consists of about 100 huts and 5 forts. It is the principal town of the Mijjertheyn Somális, and has a large trade in gums, &c. At $1\frac{1}{2}$ miles to the westward of the town is the bed of a broad stream, which after heavy rains discharges a large quantity of water into the sea.

Anchorage.—A coral bank, dry at low water, extends half a mile off the town, outside of which is moderately good anchorage, with off-shore winds, in from 6 to 8 fathoms, sand.

Supplies.—There are wells in all the forts, from which good water may be obtained; sheep and firewood are procurable.

BANDER ZAIDA or KAO, a small town and fort, 12 miles westward of Bander Kásim, is the termination of the Mijjertheyn territory. The 10 fathoms line is nearly one mile from the shore, from which the soundings rapidly increase to 100 fathoms.

Anchorage is indifferent, over a sand and rocky bottom.

See Admiralty charts; No. 100*b*, scale $m = 0.25$ of an inch, Gulf of Aden, western portion, No. 6*b*, scale $m = 0.1$ of an inch; and Gulf of Aden, general, No. 1,012.

The coast in the vicinity is backed by a low broken ridge of hills. At $3\frac{1}{2}$ miles eastward of the town is a stream of water, which is fresh in the rainy season, and navigable for boats for about 3 miles: and both east and west of the town is a small stream after heavy rain.

Elaiya (Aleyah) is a small village 5 miles westward of Zaida, and one mile farther to the westward is a broad stream of fresh water after rain.

The Sangali Somáli tribe, who inhabit the coast from Bander Zaida to Bander Háshau, near Burnt islands, are divided into several clans; they are a powerful and warlike people. Their country may be described as a plateau of limestone mountains, precipitous to the north, and gradually sloping to the south. Between the mountains and the sea, undulating ranges occur, intersected by ravines, and thickly wooded; whilst the belt of level ground near the sea is thinly sprinkled with bushes, exhibiting a plain of white sand.

Frankincense, myrrh, sumuk or gum-arabic, sheneh (orchil), and ghi, form the export of this tribe; and a peculiar kind of gum, called felleh felleh, which is shipped to Aden in large quantities from the coast.

RAS ADADDO (Hádadeh), a rocky point about 300 feet high, at the back of which is a cluster of hills 600 feet in height, between which and the village of Elaiya a black table-land of basalt and volcanic rock, of about 300 feet in height, approaches close to the sea.

The Coast from this point to Ras Galweni trends westwards a distance of about 46 miles. It is low near the sea, with an occasional hill, and bounded in the interior by the high range of Jebel-Warsangali. The depths off this part of the coast are irregular, and the bank of soundings extends from 2 to 4 miles off-shore. There are several villages along the coast, also khors or lagoons, in which the water is fresh after rain.

Anchorage may generally be found in from 5 to 10 fathoms, close to the shore, but it is indifferent, the bottom being sand and rock.

Durduri, a small village with a fort, $4\frac{1}{2}$ miles westward from Ras Adaddo, has a fresh-water khor close westward of it. The edge of the bank of soundings is here 2 miles from the shore, with 10 fathoms at half a mile. Nearly 5 miles westward of Durduri is Ras Dofdilláh, a low sandy point, on which is a small isolated table hill of 600 feet elevation.

RAS GAHM is a low, flat, sandy point, 16 miles westward of Ras Adaddo, the anchorage depths off which extend only $1\frac{1}{2}$ miles, and

suddenly drop from 10 to 75 and 100 fathoms. There are several inlets from the sea at the point, in which the water is fresh after rain, and a large fresh water lagoon. On the western side of the point are three small villages, and Bander Gahm fort, whence gums are exported.

The anchorage directly off these villages is bad, the depth being 12 fathoms close in-shore, and the bottom rocky.

RAS LASMAAN (GORÍ) is a low sandy point, $7\frac{1}{2}$ miles westward of Bander Gahm, on which are several small sand-hills, and a khor of brackish water, which is little more than a swamp. On the western side of the point is situated Bander Laskhorai (Gorí), the principal town of the Sangali Somáli tribe, consisting of three forts and two large villages. Here also there is a large trade in gums.

The Anchorage off the town is bad, the bottom being rocky, and the soundings irregular: the best berth would probably be found north-eastward of the town, in 7 to 10 fathoms, three-quarters of a mile from the shore. Cattle, water, and firewood are procurable at the town. A reef skirts the shore rendering landing difficult, but there is a passage through it used by the natives.

Tides.—It is high water, full and change, at Bander Laskhorai (Gorí), at 8h. 45m.

RAS GALWENI is a low sandy point, to which a spur of the mountain range slopes. The bank of soundings extends a little more than 3 miles from the shore, the 10 fathoms line being about one mile distant, from which it rapidly falls off into 50 and 100 fathoms. The bottom is chiefly sand and coral. The coast between Ras Galweni and Bander Laskhorai is low and sandy, and backed a short distance in the interior by ranges of undulating hills.

The Coast from Ras Galweni trends westward 9 miles to a point, whence to Ras Sorreh, a further distance of 15 miles, it forms Ghubbet Kalwait, in which is Koshé village. The shore is low and sandy the whole distance, and thinly covered with bushes at a short distance from the beach. Between the high range of mountains in the interior and the beach, are ranges of undulating hills. The edge of the 100 fathoms line is at an average distance of $2\frac{1}{2}$ miles from the coast for the first 13 miles, after which it increases to 7 miles; the 10 fathom line is about three-quarters to one mile off-shore. The general nature of the bottom is sand, coral and occasionally shells.*

* See Admiralty chart, Aden gulf, No. 6b; scale $m = 0.1$ of an inch.

RAS SORREH (Suereh), a low bluff point, from which the coast line westward to Ras Kathib, a distance of 22 miles, is slightly convex. For a distance of 3 miles from Ras Sorreh the coast is formed of low cliffs, thence it becomes low and sandy, and at a short distance from the beach is covered with bushes. The range of undulating hills, continue to back the coast, with occasional spurs from them approaching the sea.

Bander Háshau (Jedíd), a small village $6\frac{1}{2}$ miles westward of Ras Sorreh, close to the beach, is the boundary of the Warsangali territory: the inhabitants are not always inclined to be civil to strangers. South-eastward of the village, and distant 3 miles, is Jebel Burdero, an isolated hill.

Ras Hambais, a low sandy point 8 miles westward of Bander Háshau, may be known by a large single tree on the beach: 8 miles south-westward of this point is Ras Kathib, a low rocky bluff point, with 22 fathoms water close-to.

MAÍT (Meyet) Ar-Rabbsh or Burnt Island, is a barren rock, 430 feet high, and covered with guano, which is collected and carried in native boats to the Ash-Shehr and Makalleh markets. It lies $5\frac{1}{2}$ miles off Ras Hambais, the nearest point on the mainland.

A reef, with a least depth of 2 fathoms, projects about one cable from its western extreme. The depths in the channel between the island and the main, are irregular, varying from 13 to 22 fathoms, and to the south-eastward to 78 fathoms. The edge of the bank of 100 fathoms, extends about 3 miles seaward of the island. The nature of the bottom is chiefly coral, occasionally sand, or sand and shells.

There is no water on the island except in rainy weather, which then lodges in pools on the summit of the rock, percolates through, and finds its exit close to the water's edge. On the south side of the island is a remarkable cove or natural dock capable of admitting a vessel of 300 tons by clenching the ends of a cable through holes in the rock.

The Coast from Ras Kathib trends south-westward 8 miles to Jebel Máit, a mountain 1,200 feet high, which terminates on the coast at a small rocky point. The coast for 4 miles from Ras Kathib is composed of low cliffs, whence it becomes sandy. The soundings off it are very deep, affording no safe anchorage.

MAIT (Meyet), situated 2 miles eastward of Jebel Máit, is the burial place of Máit, the founder of the Edoor nation. It is

situated on a small plain, bounded by the western extreme of the lofty Jebel Sangali range, which here approach within 12 miles of the sea.

From Máit a large quantity of white ebony is exported, also a long and thin rafter used both at Aden and on the coast in the construction of native houses. The hills immediately over the town afford a large supply of fine gums, and the place carries on a considerable trade with Aden and Makalleh.

The Anchorage off Máit is sheltered from winds from eastward of N.E. by N.

The Coast from Jebel Máit trends westward for 4 miles to Ras Jilbo, a low sandy point, off which the soundings are very deep, only extending half a mile off shore. At 15 miles southward from Ras Jilbo the high range, Jebel Sangali, terminates in a lofty pyramidal peak, 6,170 feet above the level of the sea; and 11 miles to the eastward of the peak is the highest part of the range, 7,150 feet high.

GHUBBET RAGÚDA.—Between the Ras Jilbo and Ankór, a distance of 46 miles in a westerly direction, the coast forms a deep bight named Ghubbet Ragúda. The shore is low and sandy, with ranges of undulating hills a short distance in the interior. The bank of soundings off it is narrow, extending only from $1\frac{1}{2}$ to 3 miles from the shore, and the water is very deep. A considerable swell rolls into the bay at times, even in the north-east monsoon, rendering landing dangerous.

Hais.—Hais island is a small rocky island $5\frac{1}{2}$ miles south-westward from Ras Jilbo, and about 400 yards north of Jebel Ret, a bluff point 510 feet in height, to which it is connected by a reef.

Anchorage.—Westward of this reef there is fair shelter from the north-east monsoon, in 5 fathoms of water. On the western side of Jebel Ret, and close to the beach, is the little village of Hais, which is fronted for some distance by a reef, affording shelter within for dhows.

In the centre of Ghubbet Ragúda, and 19 miles from Hais, is Ragúda village, with several cocoa-nut trees near the one solitary stone house: $8\frac{1}{2}$ miles eastward of it is Finger peak, with the village of Shelao, at the mouth of the river of the same name, fronting it; 12 miles to the westward is a deep valley, named Wadi Nasuja (Massineh), with a stream of fresh water running through it. There are also several small streams, which in rainy weather discharge themselves into the sea.

Ankór is another small village situated on the beach, 2 miles west-

ward of Ghubbet Ragúda; and fringed by a reef to the distance of one cable: here the 100 fathom line of the bank extends 2 miles off shore, and there is a depth of 10 fathoms, close to the reef. Landing is impracticable at low water. At $1\frac{1}{2}$ miles south of the town is an isolated hill named Jebel Marreh, and beyond is Sugar-loaf hill 994 feet high, and Ankór peak, 3,700 feet high.

Ghubbet Ankór.—From Ankór to Ras Khanzir, a distance of 24 miles, the low and sandy coast trends more northerly, and is slightly concave, forming Ghubbet Ankór. The soundings are still deep, but extend farther off-shore, the edge of the bank being from $3\frac{1}{2}$ to $5\frac{1}{2}$ miles distant eastward of Ras Khanzir, affording better anchorage, over sand, than to the eastward. Khor Shoreh, a shallow lagoon, lies about 4 miles eastward of Ras Khanzir.

Ras Khanzir is a low rocky point, with sandy beaches on either side; inland is a range of irregular hills of various elevations.

KARAM, a village 3 miles south-westward of Ras Khanzir, is one of the most important villages of the Haber-al-Jahleh branch of the Edoor or western tribe of Somális, from its possessing a tolerable anchorage and being the nearest point to Aden, which bears about N. by W. $\frac{1}{2}$ W., distant 126 miles. What greatly enhances the value of Karam is its vicinity to the country of the Dalbahanta (within four days' journey of it), and who therefore naturally have their chief trade through that port.

The Anchorage is west of the town in from 4 to 10 fathoms, sandy bottom, at from one quarter to three-quarters of a mile from the shore, where there is tolerably good shelter from easterly winds. Soundings extend off-shore for a distance of 3 miles.

The Coast from Karam trends west-south-westward for about 30 miles to Ras Kathib. It is generally low and sandy, with numerous hills of various elevations a short distance in-shore, and backed by the Jebel Kalsam range, the highest peak of which, bearing about S. by W. from Ras Kathib, is 2,600 feet above the sea. The depths are more convenient for anchoring, and the bank extends farther from the shore, than off the coast eastward of Karam. The bottom in-shore is of sand and shells, and off-shore, of sand and coral.

Ras Sudda (Siddeh) about 10 miles westward of Karam, is a low rocky point, with a reef extending off about 200 yards, immediately outside of which the depths are 16 and 18 fathoms. The depths increase gradually from the shore to 26 fathoms at $3\frac{1}{4}$ miles distance, whence the edge of the bank is steep.

Ainteral (Enterád) is a small village 3 miles south-westward from Ras Siddeh, having a large trade with Aden in sheep. There is tolerable anchorage off the village, in from 6 to 8 fathoms, distant one to $1\frac{1}{2}$ miles from the shore; the 10 fathoms line is 2 miles, and the edge of the bank 7 miles distant from the shore. Small craft find good shelter from easterly winds.

Ras Walhun is a low projecting sandy point 8 miles south-westward of Ras Sudda, with a shallow spit extending three-quarters of a mile off. Between the point and Ainteral, is Kamadeh hill, 235 feet high. Westward of Ras Walhun, the coast is low and sandy, and trends to Ras Kathib; at a distance of $3\frac{1}{2}$ miles inland are several peaks, varying in height from 1,000 to 1,250 feet. The soundings on this part of the coast are shoaler, the 10 fathoms line being 2 miles from the shore, decreasing gradually in depth towards it; the edge of the bank is four miles distant, and very steep, the soundings suddenly dropping off from 15 to 65 fathoms.

Ras Kathib (Katíb) is a low sandy point, off which the edge of the bank is again only one mile from the shore.*

The Coast from Ras Kathib trends south-westward for 24 miles to Berbereh, and is low and sandy, with soundings from one to 2 miles from the shore.

Seyara is a village consisting of a few huts, at about 5 miles south-west of Ras Kathib, where are some wells of good water, at about 60 yards from the beach.

Anchorage.—There is anchorage of Seyara in 10 fathoms, about half a mile from the shore, but no protection from winds from seaward. Eastward of the village is a hill of the same name, 1,240 feet in height.

Ras Alweni is a low, sandy point, 8 miles north-eastward of Berbereh, close off which is a sunken rock. There are no soundings at 100 fathoms, beyond $1\frac{1}{2}$ miles from the point.

BERBEREH,† the only harbour on this coast, lies within a low, sandy spit $1\frac{1}{2}$ miles in length, the extreme of which, named Tamar point, is steep-to, there being a depth of 10 fathoms at the distance of one cable. The harbour is one mile wide and free from danger, having 11 to 13 fathoms water at the entrance, decreasing gradually towards the head, there being 5 fathoms water at 2 cables distance; it affords good anchorage, and complete shelter from all winds except from the westward.

* There is a point of same name, Kathib (Katib), about 105 miles to the eastward.

† See Admiralty plan of Berbereh, No. 919; scale, $m = 3.0$ inches. Remarks chiefly from the Survey of Lieut. Johnson, H.M.S. *Arab*, 1884.

LIGHTS.—On the south shore of the entrance to Berberreh, near high water, is a tower about 70 feet high, from which the light was formerly exhibited. The light, *fixed* white, is now exhibited from a mast 49 feet high, close to the tower, and is visible in clear weather from a distance of 8 miles. A *red* light, visible about 3 miles, is exhibited from the Custom house flagstaff, as a leading light to the anchorage.

A Beacon about 24 feet high stands on the highest part of Tamar point. The masonry is 12 feet high, white, dome-shaped, and surmounted by a staff and drum.

Pier.—A screw pile pier, connected to the mainland by a stone causeway, fronts the European town at Berberreh. At low water there is a depth of 10 feet at its extremity.

Tides.—It is high water, full and change, at Berberreh, at 9h. 30m.; springs rise $8\frac{1}{2}$ feet, neaps 6 feet.

Directions.—To the eastward of Berberreh there is a high irregular mountain, which, seen on a S.W. by S. bearing, has six peaks, all inclined to the eastward; at the apparent length of this mountain, to the westward, is a gap or pass, and a short distance further westward is Berberreh. In approaching Berberreh, the first object to be seen is the fort, situated on the hill at $1\frac{1}{2}$ miles southward of the town, then the minaret; the old lighthouse, painted in red and white bands, is not visible from any great distance. Approaching Tamar point, the lighthouse kept on the bearing of South, leads westward of Tamar point spit; and when the flagstaff of the Custom house bears E. by N. $\frac{1}{2}$ N. it should be steered for. Vessels may then anchor according to draught. At night, the lights may be steered for on the same respective bearings. The holding ground is good. Vessels visiting the port during the months of July to September should have plenty of room to veer, as the wind blows hard from South to S.W. with a force at times of 8 to 9. These winds blow most persistently, and generally begin about 10 p.m. lasting till noon of the following day; occasionally they last for two days.

The Town of Berberreh is situated at the head of the harbour, and varies in dimensions and population according to the season of the year. In the centre of the native town and fronting the shore, are the Custom house buildings, of whitewashed stone, with a flagstaff. Southward of the Custom house, is the police barracks, also white, and with a flagstaff. The European town, known as the Shaab, is on the south-east side of the harbour, and consists of

stone houses, fountains, and gardens. There is a mosque with a minaret, and a white building with a dome, at the east end of the town, over the tomb of a sheik named Yussuf. The Government is administered by an Assistant to the Resident at Aden, and a detachment of British troops is quartered here.* Exposure to the powerful summer sun should be avoided when possible.

Trade.—From October to March, or the trading season, the population amounts to about 20,000 souls, and during the remainder of the year to about 7,000. The tribes from the interior commence to assemble in October, and are constantly arriving as late as March, bringing with them the produce of the country, which consists of skins, feathers, ghi, ivory, myrrh, gums, coffee, sheep, goats, &c.; these are exchanged for cotton, piece goods, rice, dates, sugar, &c. The trade of Berbereh, and of all the Somáli coast, is conducted by agents, called *abbans*, and anyone wishing to open business must appoint one of these, but the authorities should first be consulted. 82 steamers and 405 native craft entered the port in 1886. The value of the exports and imports in 1886 amounted to about £200,000; revenue, £6,500.

Supplies.—Fresh water is laid on to the pier from which boats may obtain it, but to those who can obtain distilled water, it is not recommended for drinking purposes. Plenty of fish may be taken with the seine off Tamar point. Berbereh has long been one of the chief sources whence the port of Aden has derived its supplies of sheep and cattle. There is constant communication with Aden; also with Bulhar in the trading season.

The Annual Fair,† which commences in October, and lasts till the end of March, is one of the most interesting sights on the coast. As soon as the season changes, the island tribes commence moving down towards the coast, and prepare their huts for the expected visitors. Small craft from the ports of Yemen hasten across, followed about a fortnight to three weeks later by larger vessels from Maskat, Súr, and Ras-al-Khaimeh, and the valuable freighted baghalahs from Bahrain, Basrah, and Grane; lastly, the fat and wealthy Banyan traders from Pur-bunder, Mandavee, and Bombay come across in their clumsy craft, and elbow themselves into a prominent position, in the front tier of vessels in the harbour, and by their superior capital, cunning, and influence soon distance all competitors. During the height of the fair, Berbereh is a perfect Babel in confusion, as in languages.

* Protectorate; see page 41.

† Lieutenant C. J. Cruttenden, Indian Navy.

By the end of March the fair is nearly at a close, and craft of all kinds, deeply laden, and sailing generally in parties of three or four, commence their homeward journey. The Súri boats are usually the last to leave.

The Haber Awal branch of the Edoor tribe occupy the low lands between Berbereh and Kulangárit, near Zeila, a fertile tract of country, with several low ranges of hills, averaging perhaps 40 miles in depth, by 90 miles in length. The number of sheep and camels found on these plains is incredible; asses are very numerous, and most admirably adapted to the country. The camels are small and weak.

The COAST.—The general direction of the coast from Berbereh is west for 40 miles, or until near Jebel Almis; it then takes a north-westerly direction as far as Zeila. The whole extent of this part of the coast is low and sandy, rising gradually towards the range of mountains, which bound it in the interior, at an average distance of 18 to 20 miles, but which approach to within a few miles of the beach in the vicinity of Berbereh. The mountains between Jebel Almis and Berbereh recede 15 to 20 miles from the beach, forming a deep curve, and the coast being low, gives it the appearance of a deep bay.*

Jebel Almis (Elmas) is a rugged irregular mountain, the highest peak being rather more than 2,000 feet above the level of the sea, and distant from the beach about 8 miles.

The coast from Berbereh to Kulangárit has not been surveyed, but there is said to be no danger between those places; the shore is bold to approach, with 6 to 7 fathoms water close-in.

The 20-fathoms line between Berbereh and Jebel Almis is about $1\frac{1}{2}$ miles from the shore, thence increasing to 7 miles off Kulangárit, outside of which line there is no bottom at 40 fathoms.

BULHAR is a small village on the coast, at about 12 miles eastward of Jebel Almis, and 33 miles westward of Berbereh. It is now a British possession, and the Government is administered by an Assistant to the Political Resident at Aden.† The town and trade are improving rapidly.

LIGHT.—A *fixed* white light, 30 feet above the sea, is exhibited annually between 1st November and 30th April, from the top of the prison, at Bulhar, visible in clear weather from a distance of about 8 miles.

* See Admiralty chart, gulf of Aden, western portion, No. 65.

† Occupied during the north-east monsoon period only.

Anchorage.—There is anchorage in from 10 to 6 fathoms, with the village bearing between S.E. and S.W. When within 2 miles of the town, vessels should approach slowly, as the water shoals rapidly from 10 to 6 fathoms; within the latter depth it is not prudent to venture. It is reported untenable during the greater part of the south-west monsoon.

A sand-bank, dry in places at low water, fronts the coast for some distance on either side of the town, over which coasting craft pass at high water to a partially sheltered anchorage within, and where loading and discharging is facilitated. At low water they enter this anchorage by passing round the west extreme of the bank.

Some conspicuous trees just eastward of the town, as well as Jebel Almis to the westward, will serve to point out the position of Bulhar from the offing.

Sama-wa-nak is a collection of huts on the beach, frequented by native traders during the north-east monsoon. It is situated about 20 miles westward of Bulhar, and may be identified by a cluster of date palms growing near the huts.

There is anchorage in 6 fathoms, sand, about three-quarters of a mile from the beach.

Dungareta or **Dunkaraita**, about 15 miles westward of Samá-wa-nak, is stated to be in lat. $10^{\circ} 43' N.$, long. $43^{\circ} 57' E.$ It is distinguished from the rest of the coast by some scattered groups of trees; and there are high mountains at some distance inland, visible in clear weather.

There is anchorage from 3 to 4 cables off-shore, in about $6\frac{1}{2}$ fathoms.

Khor Kulangárit is a small and shallow inlet distant about 92 miles westward from Berberéh, and can only be entered by small boats at high water. A low sandy plain extends to the foot of the mountains, which are distant about 20 miles.*

Shab Kulangárit, a dangerous rocky patch awash at low water with from 9 to 11 fathoms close around, is distant from the shore 2 miles, with the entrance of the Khor bearing W.N.W. $5\frac{1}{2}$ miles, and a thick clump of bushes, resembling a tree when seen from a distance, about three-quarters of a mile from the beach, S.W. by W. $\frac{3}{4}$ W.

* See Admiralty charts, Jebel Jan to Seyara, No. 253a; and Gulf of Aden, western portion, No. 6b.

Khor Madúji, another small inlet, is situated 7 miles north westward of khor Kulangárit, with which it is said to be connected by a swamp or backwater. The coast between them is low and sandy, with a range of sand-hills in the interior, distant from the beach from 1 to 2 miles. It is much frequented during moderate weather by small boats from Berbereh, Zeila, and Tajúra for firewood and wood for house-building.

At $1\frac{1}{2}$ miles N.E. by N. from khor Majúdi is a bank with one fathom least water, on which the sea breaks heavily at times, with 7 fathoms close-to.

Shab Madúji is a dangerous reef nearly 2 miles in length by three-quarters of a mile in breadth, lying between khor Kulangárit and khor Madjúdi, and distant from the nearest shore from $1\frac{1}{2}$ to $3\frac{1}{2}$ miles. The centre or dry part of the shoal bears from khor Kulangárit N.N.E. $\frac{1}{4}$ E. about 4 miles. Seaward of it the soundings are regular, there being 10 and 11 fathoms water at a distance of $1\frac{1}{4}$ miles; but between the shoal and the shore the soundings are irregular, there being a bank with 2 to 3 fathoms, on either side of which there are depths of 7 to 8 fathoms.

Ras Maskan is a low point with a reef of rocks extending off one mile. Within the point during the rainy season (December—February) there are several pools of fresh water in the bed of a watercourse.

Reef.—At $2\frac{1}{2}$ miles north-east of the point is a dangerous reef of rocks half a mile in diameter, and awash at low water, with 5 to 9 fathoms water close-to all round.

The COAST from Ras Maskan to Zeila, a distance of 12 miles, is low and swampy, with a range of sand-hills from 30 to 40 feet in height, about two miles from the beach. It is fronted by a reef which extends in places half a mile from the shore.

Shab Sheikh Yakúb a reef of rocks half a mile in diameter and partly dry at low water, having 6 fathoms close around, lies 4 miles off-shore, with Zeila mosque bearing N.W. $\frac{3}{4}$ W. distant 6 miles. A rocky patch of $2\frac{1}{2}$ fathoms water, and 4 fathoms close-to, lies about midway between it and the shore; also a bank with 5 fathoms water, lies nearly two miles S. by E. $\frac{1}{2}$ E. from Shab Yakúb.

With the exception of these banks there are no known dangers

until Zeila is approached. The depths increase gradually from the shore to seaward until 40 fathoms is reached, beyond which depth no soundings have been taken.

ZEILA is a place of some importance, being the only port on the Essah coast, and having a trade with Mokha and the neighbouring parts.* It is built on Ras Hamar, a low sandy spit nearly level with the sea, projecting to the north-eastward, and consists of a mosque, some stone houses, and probably some 200 huts, the whole enclosed within a mud wall. The government is administered by an Assistant to the Political Resident at Aden, and a detachment of troops are stationed here. The population, 1885, amounted to about 4,000.† H.M.S. *Penguin*, July, found the temperature at mid-day over 100°.

The principal articles of export are coffee, dye, ghi, ivory in small quantities, ostrich feathers, and a small quantity of gums. The Custom house is situated at the west end of the town, with a pier extending off from it.

Shoals in the approach.—Arab shoal, with a least depth of $4\frac{1}{4}$ fathoms, has been found to be in lat. $11^{\circ}38\frac{3}{4}''$ N. long. $43^{\circ}39\frac{3}{4}''$ E., or about 20 miles north-eastward of Zeila. From this position a bank of sand and coral, about three-quarters of a mile in width, with depths of 7 and 8 fathoms, extends for about 2 miles in an east-north-east direction, and also about half a mile to the westward. Beyond these limits the depths increase rapidly to 100 fathoms, no bottom. The shoal is not easily seen.

Shab Filfil, a sunken reef lying off the hard sand banks, which extend eastward of Zeila town, is a reef of coral with depths of from one to 2 fathoms; it is oval in shape, $1\frac{1}{2}$ miles in length, by three-quarters of a mile in width.

A buoy formerly marked its north-west extreme, but it was washed away, and has not since been replaced.

Seagull shoal.—The northern extremity of this reef lies one mile south-east of Shab Filfil. It is about $2\frac{1}{2}$ miles in length, $1\frac{1}{2}$ miles in width, irregular in shape, and has depths of one to 2 fathoms.

* Under British protection, see page 41.

† See Admiralty plan of Zeila, No. 919. Remarks chiefly from the survey and directions of Commander H. Hoskyn, H.M.S. *Myrmidon*, 1885.

Both these reefs are steep-to on the north-east or outer side, the depths increasing rapidly to 20 fathoms. On the inner side, and between them, the depth is from 3 to 6 fathoms. They are at all times very difficult to see, and should be carefully avoided.

A third reef exists in this neighbourhood, circular in shape, and half a mile in diameter. It is situated one mile south of Shab Filfil, and half a mile west of Seagull shoal.

The passages between these reefs are believed to be clear of danger, but owing to the difficulty in seeing the two larger reefs, and the want of leading marks, the passages should never, under any circumstances, be attempted.

Channel reef, a coral patch half a mile in extent, of from one to 2 fathoms, lies about $1\frac{3}{4}$ miles N.W. by W. of the north-west point of Shab Filfil.

Buoy.—A black and white buoy is moored on its eastern edge, but being small, is difficult to distinguish at any distance.

There is a patch of $3\frac{1}{2}$ fathoms between Channel reef and Shab Filfil, half a mile from the latter; otherwise the channel is clear.

Aibat (Ivat or Efat) Island, is low and sandy, and $1\frac{3}{4}$ miles in length, by about a quarter of a mile in breadth. Its south-west point is steep-to; there being 6 fathoms within a short distance; on all other sides it is surrounded by a reef, dry in places at low water, and which extends in an easterly direction about 4 miles, with a breadth of about 3 miles.

Buoy.—The eastern extreme of this reef is marked by a red buoy.

A Beacon, white and conical, stands on the northern part of the island, but is of little use, being built low down on the beach, and not showing above the bushes behind it; generally, it can only be seen when the sun is favourably situated.

Reefs.—At one mile N.W. by W. from the beacon, and separated from the main reef by a channel about $2\frac{1}{2}$ miles wide, is a small patch of coral. Both this and the large reef are at all times easily seen. From the south-west extreme of Aibat island reef, a tongue of reef extends for $1\frac{3}{4}$ miles in S.W. by S. direction, with depths of from $1\frac{1}{4}$ fathoms to 3 fathoms.

Sad-ad-din Island forms the north side of Zeila road. It is low and sandy, of coral foundation, and is for the most part covered with bushes, the tops of which are about 20 feet above the sea. It is

surrounded by a bank of coral, mud, and sand, which uncovers at low water. This bank extends about half a mile on the eastern side, and from a half to one mile on the other sides. Between the shoal water which extends nearly one mile north-westward of Sad-ad-din, and that from Aibat island reef, there is a channel about $2\frac{1}{2}$ cables in width, with depths of from 6 to 7 fathoms. From the absence of good leading marks, caution is necessary in passing between these islands.

Banks.—On the east side of Sad-ad-din, a bank, with as little as 2 feet of water in places, extends to the distance of $1\frac{3}{4}$ miles; its extremity is marked by a small red buoy, surmounted by a perch. At $1\frac{3}{4}$ miles S.S.W. of this buoy and the same distance E. by S. of the south point of Sad-ad-din, is a patch of $2\frac{1}{2}$ fathoms, surrounded by deep water.

The general depth between the reef surrounding Sad-ad-din on the eastern side, and Aibat island reef, Channel reef, and Shab Filfil, is 6 to 7 fathoms, but at the distance of from a half to one mile eastward of the perch buoy the soundings are irregular, there being numerous patches of 4 fathoms, for the avoidance of which reference to the chart is necessary.

The roadstead of Zeila, between the mainland and Sad-ad-din island, is about 2 miles in width, north and south, by about 3 miles east and west. In the centre there is a depth at low water of from 4 to 5 fathoms, mud and sand, good holding ground. It shoals very gradually on the southern side towards the town, but on the north side the edge is somewhat steeper.

A patch with one foot depth at low water, lies just within the edge of the 3 fathom line on the south side of the road, and N.E. by N. distant $1\frac{1}{2}$ miles from the end of the pier.

On the west side of the road the approach is almost entirely blocked by a line of sandbanks, dry at low water, which extend from Ras Ta-ku-sha, 4 miles N.W. by W. of the town, to the south-west part of Sad-ad-din banks. All the south-western part of the road is shallow, the average depth being about $2\frac{1}{2}$ fathoms. At the distance of $1\frac{1}{2}$ miles S.W. $\frac{1}{2}$ W. of the south-west point of Sad-ad-din there is a patch of 3 feet.

The spit on which the town is built is continued as a shoal, dry in places at low water, about one and three-quarters of a mile in width, and terminating about $3\frac{1}{2}$ miles E.N.E. of the town.

Pier.—From the north-west corner of the town, where the Custom house is situated, an old pier projects N.W. by W., about a quarter of a mile; it is not accessible for boats after half ebb.

Anchorage.—The best anchorage in Zeila road is in about 4 fathoms, at 2 miles North of the town. During the north-east monsoon, a moderate swell sets into the road increasing generally towards the afternoon.

Tides.—It is high water, full and change, at Aibat island, about 7h. 45m., springs rise from 8 to $9\frac{1}{4}$ feet; neaps from $5\frac{1}{4}$ to $8\frac{1}{4}$ feet.

Except at springs, the tides are exceedingly irregular, both as to rise and fall, and time of high water. At springs, the flood was observed to set to the westward through the road, and the ebb to the eastward at the rate of half a knot, but this is not to be depended on as the set is much influenced by the winds.

On Arab shoal, during two days in February, with light north and north-east winds, the current set south-eastward, from 1 to $1\frac{1}{2}$ knots an hour.

Directions.—The best time for entering Zeila is in the morning. As the land in the vicinity is low, and the shoals extend a considerable distance off-shore, there are no distinct landmarks by which a vessel may ascertain her position until near the reefs. Vessels, therefore, bound for Zeila will do well to make Aibat island. If the lead be attended to, it will be found of assistance, and a cast on Arab shoal will always be an excellent guide. The passage between Aibat island reef and Channel reef is the one recommended. From abreast the red buoy off Aibat island reef, to the anchorage, the course is about S.W. by S. $\frac{1}{4}$ S., direct for the town, but the navigation must be principally by the chart.

Vessels from the south-eastward should on no account shoal their water to less than 20 fathoms, until northward of Shab Filfil. From about one mile outside this reef, Sad-ad-din and Aibat islands, as well as the town of Zeila, are visible from the top; Sad-ad-din being the higher, will be seen first; Conical hill, 371 feet high, westward of the town, is possibly a useful mark in clear weather. The beacon on north extreme of Aibat island may be steered for when bearing westward of N.W. by W. $\frac{1}{2}$ W. until within 5 miles of it, or the north extreme of Sad-ad-din bears W.S.W., when alter course for the town, bearing about S.W. by S. and proceed by the chart to the anchorage.

The positions of the buoys are not to be depended on.

Supplies.—Water is difficult to obtain, having to be brought from the watercourse 4 miles south-west of the town. Sheep are procurable.

The COAST from Zeila to Ras Jibúti, a distance of 25 miles, trends in a north-west direction, is low and swampy, thickly covered with mangrove jungle, with several projecting points forming bays between, fronted by a reef dry in some parts at low water, and several small islets.

Ras Gumarlah, about 11 miles north-westward of Zeila, is a low sandy point of irregular shape, being rounded on its eastern side, and projecting to the westward in the shape of a duck's bill. From the edge of the reef fronting the point, a narrow sandbank, over which the sea washes at spring tides, extends 5 miles in a northerly direction, surrounded by a reef of rocks, which to the northward extends about $1\frac{1}{2}$ miles beyond the extreme of the bank. There is a small clump of bushes in the bend of the sandy spit, and between it and the shore reef is a narrow boat channel, available at high water.

Shab Túruhát.—At 3 miles N.N.E. from the extreme of the sandy spit, is Shab Túruhát, a dangerous reef, about one mile in diameter, and dry in parts at low-water springs, between which and the spit reef there are irregular soundings of 3 to 4 fathoms water with a rocky bottom. Close seaward of the reef the depths are 10 to 12 fathoms.

Islets.—Eastward of Ras Gumarlah, on the edge of the shore reef, which here extends from the coast for a distance of 3 miles in a north-easterly direction, are three small islands covered with bushes, named Jezirat Mosheikh, between which and Gumarlah spit is the boat channel before mentioned.

Mersa Dalwakteah.—The coast immediately westward of Ras Gumarlah forms Mersa Dalwakteah, a bay 5 miles wide. A reef, dry at low water, extends from the shore from a half to $1\frac{1}{2}$ miles, between which and Jezirat Dalwakteah, an island connected with the main at low water, and having a reef extending northward one mile, is a very good anchorage for small craft, with 4 fathoms water. In the depth of the bay, close to the beach, at Lávada (Lehadú) are some wells of good water.

Reefs.—In the bay formed between Gumarlah sand spit and the reef off Jezirat Dalwakteah the depths are from 12 to 8 fathoms, muddy bottom. Westward of the northern extremity of the spit at

one and 2 miles, are two small rocky patches, dry at low-water spring tides, and having 10 to 12 fathoms close-to. In the depth of the bay, and half a mile from the spit reef, is another sunken rock with 6 and 7 fathoms close-to.

North from the centre of the Mersa or harbour, distant 3 miles from the shore, and one mile from the shore reef, with 8 to 9 fathoms water between, is Moidubis Seghir reef, about 3 cables in diameter, and dry in places at low water.

The channel between Moidubis Seghir and the shore reef has 7 to 8 fathoms water, on either side of a small patch with about one fathom water nearly in mid-channel. Guttatella Ousal, a reef 350 yards in diameter, dry also at low water, lies 2 miles north-westward of Moidubis Seghir, with depths of 11 to 12 fathoms between.

Moidubis Kabir reef, is $1\frac{1}{2}$ miles long, by three-quarters of a mile broad, lying from $1\frac{1}{2}$ to 3 miles N. by E. from Moidubis Seghir, with 13 fathoms water between, over a mud bottom.

The coast from Mersa Dalwakteah to Ras Jibúti is fronted by a reef of rocks, dry in most parts at low water, varying in breadth from a half to $1\frac{1}{2}$ miles, and several small rocky islets; the edge of the reef is steep, there being from 5 to 8 fathoms water close-to.

Jibúti Anchorage.—Ras Jibúti is a low rocky point, projecting about 2 miles northward from the coast, close off which is a coral island, about 35 or 40 feet high, of the same name, connected with the point at low water, and is the south point of the entrance to the gulf of Tajúra. A reef extends $1\frac{1}{2}$ miles westward of the island; and to the south-westward are two other reefs, dry at low water, between which and the reef extending from the point is Jibúti anchorage, of about one mile in extent, with a clear space of three-quarters of a mile in diameter.

There are also three shoal patches north-westward of the anchorage. One, dry in parts at low water, lies with Jibúti island bearing S.E. $\frac{1}{2}$ S.; and two patches each with two fathoms water, lie with the island bearing S.E. by E. distant 3 miles, and E. by S. $\frac{1}{4}$ S. 4 miles.

MASHÁH (Mushahh) Islands are a group of coral islands, from 30 to 40 feet above the sea, lying on a coral reef extending north-east and south-west 7 miles, by $3\frac{1}{2}$ miles in breadth. They are composed of three islands and five small rocky islets, situated nearly mid-channel between the Essah and Danakeli coasts, dividing the entrance to the gulf of Tajúra into two channels. The north channel is 7 miles wide, perfectly free from danger, having no bottom at 40 fathoms.

The islands are dangerous to approach, being surrounded by coral reefs, dry in many parts at low water, with outlying isolated patches, to a distance of $1\frac{1}{2}$ to $2\frac{1}{2}$ miles. The soundings to the eastward of the islands are irregular, with overfalls, for a distance of $4\frac{1}{2}$ miles. Between the islands and the reefs off the Essah coast, the soundings are regular, from 17 to 20 fathoms, with a mud bottom.*

Protectorate.—The islands were ceded to the British by the Sultan of Tajúra, and taken possession of on the 31st August, 1840. By treaty (1887), these islands, and the gulf of Tajúra, from Ras Jibúti, westward, is now under the protection of France.

Anchorage.—There is tolerable anchorage in 6 to 9 fathoms, mud bottom, in a gap in the reef at half a mile northward of the eastern island. A good look-out is necessary on entering this anchorage, as there are several rocky patches detached from the main reef, and one of 2 fathoms lies nearly in mid-channel. It affords good shelter at all seasons. The westernmost island is named Maskali.

The Zeila Bank of soundings, from Zeila to the Masháh islands, extends from the shore an average distance of 14 miles, and the soundings, with the exception of the numerous reefs already noticed, increase gradually from the shore to 20 and 25 fathoms at that distance, over a mud bottom, when a narrow ridge of 14 to 20 fathoms occurs, and suddenly falls into no bottom at 40 to 50 fathoms, beyond which depths no soundings have been recorded.

GULF OF TAJÚRA.—The coast within Ras Jibúti, entrance to the gulf of Tajúra, takes a westerly direction for a distance of 10 miles to Khor Ambada, and continues that direction to the entrance of Ghubbet Kharab. For the first five miles, as far as Mersa Manga Daffa, a small boat anchorage, it is low and swampy, when it assumes a steep, bold, precipitous character, being formed of cliffs rising 400 and 500 feet above the level of the sea. At Manga Daffa the mountains again approach the sea, and skirt the coast as far as the entrance to the Red sea. *See* protectorate, above.

Inhabitants.—The coast from Kulangárit to Ghubbet Kharab is inhabited by wandering parties of the Essah Somális, a powerful tribe, and said to be much feared by the Danakelis tribe, inhabiting the opposite side of the gulf. They are, generally speaking, a tall race, the men averaging 6 feet in height. They are rich in cattle; bullocks,

* *See* Admiralty chart, Jebel Jan to Seyara, No. 253a.

sheep and goats are cheap, and their camels are large. The sea-coast is barren, but the interior is said to be very fertile. The produce of the country is taken to Zeila, where it is exchanged for coarse white and blue cloth, tobacco, &c.

From Ghubbet Kharab to the entrance of the Red sea the inhabitants are of the Danakeli tribe, whose territory extends inland to the borders of the kingdom of Shúah. They probably exceed 5,000 in number, and are subdivided into several smaller tribes, viz.: the Abd-Ali, the principal, to which the Sultan belongs; the Abli; the Debenk; and the Rúkbeh. Their religion is Mahomedan, but they are not strict observers of their creed. They are all armed with spears, shields, and krises, some few have swords, and near the coast a few have firearms. Opinion seems to be divided as to the character of these people; by their neighbours they are held in great disrepute, being considered cruel, treacherous and inhospitable, in the same manner as they themselves hold the Essah Somális to be murderous thieves. Europeans who have visited the coast have generally been received with great civility, possibly owing to their being armed; but the probability is, that if treated kindly, and their prejudices respected, they in return will act civilly.

Khor Ambada, on the south side of the gulf, is a stream of fresh water, with very good anchorage in from 12 to 15 fathoms off it, formed by a reef running out at right angles to the coast to a distance of three-quarters of a mile, affording protection from easterly winds. North-westward of the khor, distant nearly one mile, is a patch of two fathoms, with a patch of about five feet at 4 cables south-west of it; around these patches and towards the shore are depths of 12 to 14 fathoms water, over a sandy bottom, and between the patch of two fathoms and the main reef to the eastward is a channel about 3 cables wide, having 15 fathoms water. In the event of a vessel watering at the khor, it would be prudent to have the party armed.

Eiro Anchorage.—From Khor Ambada nearly to Ghubbet Kharab, a distance of 17 miles, the coast is steep-to, there being, with slight exceptions, from 20 to 50 fathoms close to the cliffs. This coast line is slightly irregular, jutting out into small points, to the westward of one of which, Ras Eiro, there is a small bay, with 12 fathoms close in to the cliffs, where shelter may be found from easterly winds. There is a moderately good anchorage immediately outside Ghubbet Kharab, in 17 fathoms, mud bottom, half a mile from the shore, protected from easterly winds by a rocky islet, which

is separated from the mainland by a narrow boat channel, and extending three-quarters of a mile from the coast.

Ghubbet Kharab is an extensive basin of irregular shape, 13 miles in length by 6 miles in breadth, and situated at the head of the gulf of Tajúra. The north and south shores are formed of precipitous limestone cliffs, from 400 to 2,000 feet above the level of the sea, in which are deep ravines. The western shore is volcanic and the valley is strewn with lava and volcanic remains. In the deep ravines are large masses of rock, and trees of considerable size, torn up by the roots, lying in the direction of the ravine, evidently borne down by mountain torrents.

The entrance to Ghubbet Kharab is three-quarters of a mile, divided into two channels by a rocky islet about 40 feet high, named Bab or Gate. The southern channel is 350 yards wide, over a rocky bottom; it is stated to have some shallow patches in mid-channel, and should therefore not be used.

The northern channel is only 40 yards wide, but the water is deeper, there being not less than 17 fathoms. The tides rush through these channels with great rapidity, causing whirls and rippings, giving the place a dangerous appearance.

Just northward of the north point of entrance are some ruins, and below the high water mark is a hot spring; at high water there is no sign of it.

The depth in the centre of Ghubbet Kharab is 105 fathoms, and the cliffs on either side are steep-to, affording no anchorage for a vessel. It is a remarkable fact that the mud brought up by the sounding lead, even at the depth of 105 fathoms—after scraping off the outer coating—is perfectly fresh to the taste, notwithstanding that the water at the surface is exceedingly salt, so much so, as to be painful to the eyes when used for bathing purposes.

At the western extreme is a small basin about 300 yards in diameter, surrounded by precipitous volcanic cliffs, and having 16 fathoms water. The entrance is completely closed at low water by a ridge of rocks; the water is always running from it, even during flood tide; and the natives have an idea that it is connected by subterraneous means with the Bahr Assal, or salt lake, but no signs of communication are to be observed, nor is the water at all agitated.

The whole of the western side of Ghubbet Kharab, as before mentioned, is volcanic; the lava extends to a distance of 2 or 3 miles inland to the foot of a range of sand-hills, which are elevated 200 or

300 feet above the plain. From the summit of these hills, Bahr Assal, or the salt lake, may be seen to the north-westward, distant 5 or 6 miles. This lake is said to supply all Abyssinia with salt.

On the western side, also, is Búd Ali, a precipitous inaccessible island, about 300 feet high, of a reddish white appearance; N.N.W. of it is another island of nearly equal height, entirely volcanic, the course of the lava being plainly perceptible down its sides. On the mainland, close to Búd Ali, is the mouth of an exhausted crater, about 100 feet in diameter, and apparently 300 feet deep.

Besides the above-mentioned islands are two others, one named Had Ali, on the south shore, the other a mere dry rock on the north or Danakeli coast, having a narrow channel between it and the shore, with 10 fathoms water, mud bottom.

At $1\frac{3}{4}$ miles within the entrance to Ghubbet Kharab, and on the north shore, is a bay about one mile deep, and half a mile wide, having 8 to 10 fathoms water; an islet and a sunken rock lie in the entrance, reducing it to a quarter of a mile in width.

Temperature.—The heat in Ghubbet Kharab is excessive; the range of the thermometer in the shade, during a period of 6 days, in September, was from 92° to 110° Fahrenheit.

The Coast, from Ghubbet Kharab to Tajúra, a distance of $16\frac{1}{2}$ miles, is bold to approach, there being 10 to 15 fathoms water close-to, and immediately outside, from 30 to 40 fathoms. The high mountains approach close to the sea until within 9 miles of Tajúra, when they recede about 3 miles, approaching the sea again 6 miles to the eastward of Tajúra. Jebel Gúdeh, the highest part of these mountains, is tabular, and 3,000 feet above the sea; they are thickly covered with trees, those on the summit appearing to be very large.

Ambabú, a small village consisting of about 30 huts, is situated in a grove of trees in a bight of the coast, 4 miles south-westward of Tajúra, where good fresh water may be procured. There is anchorage in from 12 to 14 fathoms, mud, in fine weather or with winds off shore, with the village bearing N.N.W., and there is 3 to 4 fathoms close to the beach; the water deepens quickly to seaward.

TAJÚRA, the seaport of the Danakeli tribe, is a village consisting of about 100 huts, which range close to the sandy beach, and at the extremes of the village are two coral built white houses, the western of which is used as a mosque; the village contains about 500 inhabitants.

At the back of the village on an eminence is a rude fort with walls round it. Very good water is obtainable from the wells, sunk about 10 feet deep.

The natives from the interior assemble here annually about the months of January and February for the purpose of trade, bringing with them gums, skins, ivory, myrrh, ostrich feathers, coffee, and a large supply of cattle, exchanging them for coarse blue cloth, red cloth, salt, frankincense, brass, lead, zinc, &c., with which they return to Abyssinia. Caravans are passing to and fro throughout the year. A few small trading boats belonging here trade with the ports of Aden, Mokha, Zeila, and Berbereh, and sometimes, though seldom, go as far as Jiddah.

Sagallo, Ambabú, Tajúra, and Obokh are the only villages on the whole extent of coast between Ghubbet Kharab and the entrance to the Red sea. Occasionally scattered parties of the Danakeli tribe may be found, but they have no permanent villages; it is when pasture is scarce in the interior that they drive their flocks down to the coast.

The Harbour is formed by a gap in the shore reef, which here extends about 200 yards off shore, immediately outside of which there is no bottom at a depth of 40 fathoms. It is of horse-shoe shape with an entrance one cable wide, having depths of 10 to 14 fathoms, but with barely room for a vessel to swing. The *Philomel* moored at the entrance, with bower anchor close to the east side of entrance in 11 fathoms, and the stream anchor out astern close to the breaking reef in 9 fathoms.* It is only during the north-east monsoon that the native craft can lie in the harbour; during the south-west monsoon it is extremely dangerous.

The best anchorage off the harbour is in 14 fathoms, about half a mile outside the reef, with the centre of the town bearing N.N.W.

Khor Ras Ali, a narrow inlet, three-quarters of a mile in length, is situated $3\frac{1}{2}$ miles eastward of Tajúra, having 6 to 7 fathoms water, with a mud bottom, and affording shelter for small craft from all winds; there is, however, a rocky bar across its entrance, with only 9 feet at high water. During the south-west monsoon this anchorage is made use of by native craft.

* Navigating Lieutenant W. Strugnell, H.M.S. *Philomel*, November 1880.

The Coast between Tajúra and Ras Ali, a distance of $5\frac{1}{2}$ miles, is fronted by a reef to the distance of 200 or 300 yards, immediately outside of which there is no bottom at a depth of 17 fathoms. The shore is sandy, rising gradually towards the mountains in the interior.

Mersa Dúan.—Between Ras Ali and Ras Dúan (bluff), a distance of $4\frac{1}{4}$ miles in a north-east direction, lies Mersa Dúan, a gap in the reef which fronts the shore to the distance of half a mile, with depths of from 12 to 20 fathoms, affording good anchorage and shelter for small craft during the south-west monsoon, being protected by the reef, which is dry in some parts at low water, projecting from Ras Ali. It is not a good anchorage during the north-east monsoon, or when easterly winds prevail. Immediately outside the reef there is no bottom at 17 fathoms. In the eastern part of the bay, immediately at the base of the tabular cliffs forming Dúan bluff, and distant from the beach three-quarters of a mile, are three wells; two of them are cold springs of excellent water, the other is a hot spring, of a temperature of about 100° Fahrenheit. There is a well-worn path between this bay and the village of Tajúra.

Ras Dúan is an abrupt precipitous cliff, 500 to 600 feet in height, at the eastern extreme of Mersa Dúan. Between it and the shoals off Obokh, there appear to be no dangers: the coast is bold, with no soundings at 30 fathoms at a distance of $1\frac{1}{2}$ miles off the bluff. For 17 miles north-eastward from Ras Dúan the shore is a precipitous cliff, the mountains approaching close to the sea; these mountains are thickly clothed with trees, and the valleys appear to be fertile.

Anchorage, with winds off the land, may be had in 16 fathoms, mud, one mile off shore, 5 miles westward of Obokh. Native vessels make use of this anchorage.

OBOKH is a French settlement, situated about 5 miles westward of Ras-al-Bir. The place, which only had about 30 inhabitants when the French took possession in 1884, now numbers from 700 to 800, composed of Somalis, Arabs, Abyssinians and Danakels. Caravans have been organised to open up trade with Shoa and other places in the interior.*

The French detachment of troops are encamped on cape Obokh, where also is a small battery and flagstaff. The general health here is excellent, the position being to windward of the marshes.

Obokh river dries up in the summer months.

Lieutenant Stuart, of H.M.S. *Ranger*, July 1884, states that at this

* See Anchorages in the gulf of Aden, No. 919, with plan of Obokh, scale $m = 3\frac{1}{2}$ inches.

season a burning wind comes from the northward, at about 5 p.m., and that the thermometer, which averages about 89° at noon, rises to 100°, with the wet bulb at about 75°.

The HARBOUR of Obokh is formed by the bight in the coast just eastward of Cape Obokh, and is protected by outlying and detached reefs extending from one to 1½ miles off shore.

South port affords anchorage for four or five vessels, and is protected from all winds except those from S.W., from which quarter very strong winds blow at times, rendering the port dangerous. Vessels might with local assistance shift berth to the north-east port, on the first approach of bad weather. North-east port is but little used, being more difficult of access than South port.

Banks.—**Surcouf**, the middle bank, is 1¼ miles in length, with a coral bank, dry at low water springs, about 4 cables in extent, near its western end; the remainder has depths of from one foot to 3 fathoms, coral. A red buoy with vane marks its west extreme, a red buoy its north-west extreme, and a black buoy with vane its north-east extreme.

Curieux Banks stretch off from the north-east point of the bay, a distance of half a mile, with East Passage of about 4 fathoms between it and Surcouf bank. A red buoy with vane marks its south extreme, entrance to East passage, and a red buoy its south-west extreme, 3½ cables farther to the westward.

Laclocheterie Bank extends about 6 cables eastward of cape Obokh, with portions of it nearly dry at low water springs. Between it and Surcouf bank is the main channel to South port, 3 cables in width. A black buoy with vane, marks its eastern extreme.

LIGHTS.—From an iron lighthouse, 34 feet high, painted white, with a red vertical stripe, and situated N.N.W., about 1,120 yards from the conspicuous white house on the ridge, is exhibited, at an elevation of 174 feet above the sea, a fixed *red* light, visible in clear weather from a distance of 10 miles.

A second *red* light is exhibited from a quadrangular tower, 39 feet in height, situated 780 yards S. by E. ½ E. from the first mentioned, the two lights in line forming the leading mark into South port.

From an iron column, 34 feet in height, painted in black and white bands, situated 100 yards within the extreme of cape Obokh, is to be exhibited, at an elevation of 64 feet above the sea, a fixed *green* light, with a *red* sector showing between the bearings of West and W. by W. ½ N.*

* This light was intended to be exhibited in 1887.

Beacons.—A white stone pile (D), is erected on the hill 62 feet high, at the head of the harbour ; a white stone pyramid beacon (G), is erected on the coast eastward of Buret bay ; a pyramid beacon (B) is erected on Obokh point ; and a beacon with white triangle is situated near the house on the beach abreast of South port. These beacons are not easily seen, but they are not necessary for entering the port.

Buoys.—In addition to the buoys previously mentioned, there are the following :—A black buoy marks the south-west extremity of Bisson bank ; a white buoy the south-west extremity of Pearl bank ; a black buoy the $3\frac{3}{4}$ -fathom patch, situated one-third of a cable northward of the north-west extreme of Surcouf bank ; and a black buoy the 3 fathoms patch, situated 150 yards southward of the west Curieux bank buoy. These buoys are all conical shaped, and too much dependence must not be placed on their maintaining these positions.

Pier.—An iron pier is in course of construction, at about 150 yards north-eastward of cape Obokh ; it is intended to extend it to the edge of the reef.

The landing place of the North-east port is under the white pile D at the head of the harbour. Small vessels may beach abreast Menier's house, situated on the shore, north-west of South port.

Supplies.—The water from the wells is only suitable for washing purposes. The condenser, for supplying water to the Europeans, is capable of making 20 tons per day. Beef of inferior quality is obtainable, and a few vegetables are grown by the troops.

Coal.—About 2,000 tons of coal are kept at Obokh, part of which is on board a hulk moored in South port ; the remainder is stored on shore, from whence it is brought in lighters. About 150 tons can be put on board per day, under favourable circumstances. Strong southerly winds, which blow at times, interrupt coaling.

Tides.—It is high water, full and change, from 7h. to 9h. 30m. ; springs rise from 6 to 9 feet.

DIRECTIONS.—South port.—A vessel coming from the north-eastward, and having passed Ras-al-Bir, must shape course to pass southward of Surcouf bank. The white house on the ridge, the lighthouses, the flagstaff and buildings on cape Obokh, will serve to identify Obokh. When South islet bears N.W. by W. $\frac{1}{2}$ W., or the flagstaff on cape Obokh W.N.W. steer for South islet until the lighthouses are in line, bearing N. by W. $\frac{1}{2}$ W., thence to the

anchorage on that course, which leads about midway between the buoys marking Laclocheterie and Surcouf banks.

At night, coming from the eastward, the *green* light on cape Obokh must be kept in sight until on the line of leading lights, which should then be steered for; the outer limit of the *red* sector shewn from cape Obokh, will give notice of approach to the banks on either side of the entrance; when on the inner limit of this *red* sector, it is time to anchor.*

Anchorage.—A good position for a large vessel is with the leading lights in line bearing N. by W. $\frac{1}{2}$ W., and South islet beacon in line with the beacon westward of it bearing W. $\frac{1}{3}$ S; at night, on the inner edge of the red sector shewn from cape Obokh. The depth here is 13 fathoms, mud. Two cables E.N.E. of this position, in 15 fathoms, another large vessel might lie at single anchor. Good berths for two smaller vessels will be found in about 9 fathoms, at 2 cables north and west of the first position.

North-East port is but little used. Its entrance between Curieux and Surcouf banks is marked by red buoys on starboard hand, and black buoys on port hand; it is scarcely advisable to take it without a pilot.

The lighthouse steered for on the bearing of N.W. by W. $\frac{1}{4}$ W., well open to the northward of white pile D., leads up to, and between the entrance buoys; from abreast the western buoy of Curieux bank, course may be made for the upper lighthouse in line with pile D, or more northward to the anchorage.

From South port to North-east port.—From abreast Laclocheterie bank buoy, beacon C on the cliff eastward of Buret bay, should be seen midway between the buoys of the narrow pass northward of Surcouf bank, bearing N.E. by E. $\frac{1}{3}$ E.; this mark steered for will lead between Pearl and Surcouf banks, and between the $3\frac{3}{4}$ fathoms bank and the north-west extreme of Surcouf bank; when through the narrow passage, gradually haul to the northward to bring the upper lighthouse in line with white pile D, then steer for them, or more northward, to the anchorage.

RAS-AL-BIR is a cliffy point from 70 to 100 feet high, forming the north point of the entrance to the gulf of Tajúra. It is difficult to distinguish at night from its pale colour, but there is no danger beyond the reef which fringes it to the distance of half a cable, there being no bottom at 30 fathoms within half a mile. From Ras-al-Bir the coast gradually falls, and is low and sandy at 5 miles north-ward

* Notice of the exhibition of this light has not been received, the night directions are therefore not yet in force.

of Ras-al-Bir; this coast is fronted by a reef to a short distance until within one mile of Jebel Jan, with depths of 5 to 8 fathoms at $1\frac{1}{2}$ or 2 cables from the coast, between which and the mountains is an extensive plain covered with mangrove and brushwood.

JEBEL JAN is the highest of three or four ranges of tabular mountains, which reach a great elevation, and approach close to the sea. It is distant from Ras-al-Bir about 18 miles.

The anchorage off Jebel Jan, though no better than others along this coast, has the advantage of the foreshore being free from reef.

From Jebel Jan the coast continues its northerly direction to Jebel Siyan, a distance of 13 miles. It is low, sandy, covered with jungle, and fronted by a rocky reef extending from one-half to three-quarters of a mile. The depths are regular, increasing gradually from the shore, the 20 fathoms line being distant about 3 miles, and the 100 fathoms line about 8 miles. There are two creeks at the distances of 4 and 6 miles southward of Jebel Siyan. Khor Angar, the southernmost, has a small islet close northward of it.*

RAS SIYAN, forming the southern point of the entrance to the Red sea, is a gloomy-looking volcanic headland, the peak being about 380 feet high, projecting northward from the coast, with which it is connected by a piece of low land 700 yards wide, having a swampy bay, surrounded with mangrove bushes, to the westward. The northern face of the cape is rocky and steep; but, from a small bay to the eastward, a bank runs out about one mile, with from 5 to 6 fathoms water on its outer edge.

JEZIRAT SOWABIH, or the BROTHERS, by which name they are more commonly known, are a group of six rocky islets, extending $5\frac{1}{4}$ miles in an east and west direction, the highest and north-eastern islet lying about due east of Jebel Siyan, and $9\frac{1}{2}$ miles southward of Perim island. The channels between them are safe, with depths varying from 6 to 25 fathoms. The anchorage is good, but the tides are rapid and irregular.

The islets are of a brownish colour, the westernmost being certainly volcanic. They are of considerable height, and five of the six of them may be seen, in clear weather, at a distance of 20 to 30 miles. The north-eastern islet is about 350 feet high, and forms a conspicuous peak; on its north side is a bay, where turtle and various kind of fish may sometimes be caught. The westernmost of the group is a low rock, the one adjacent is 200 feet, and the next eastward 250 feet high.

* See Admiralty chart, gulf of Aden. western portion, No. 6b; scale, $m = 0.1$ of an inch; also Nos. 8e and 6b

CHAPTER IV.

ARABIAN COAST, FROM THE STRAIT OF BAB-EL-MANDEB
TO MAKALLEH.*

VARIATION IN 1887.

Aden $4^{\circ} 0'$ W.

|

Makalleh $2^{\circ} 40'$ W.

The **STRAITS of BAB-EL-MANDEB**, at the entrance to the Red sea, are formed by Ras Siyan on the Abyssinian coast, and Ras Bab-el-Mandeb on the Arabian coast, the distance from point to point being $13\frac{1}{2}$ miles. This is divided into two by the island of Perim.*

The **North or Small Strait**, the route commonly adopted by steam vessels, is formed between Perim, and Sheikh Malu or Oyster island, a small rocky island, one cable distant from the shore of Ras Bab-el-Mandeb; it is $1\frac{1}{2}$ miles in breadth, and free from danger, the depths varying from 7 to 16 fathoms, irregular in the centre and on the Perim side, but on the Arabian side, north-west of Oyster island, regular with sandy bottom.†

The **South or Large Strait**, formed by the south point of Perim and Jebel Siyan, is 11 miles in breadth, and perfectly safe, there being deep water right across, and in the middle of the strait the depths are from 100 to 185 fathoms. On the Perim side, a bank extends to the distance of 3 miles off the island, having from 40 to 60 fathoms water on its outer edge, gradually shoaling to 20 fathoms close to the island. This bank is connected with that fronting the Arabian coast, which suddenly deepens into 150 to 180 fathoms. The strait is narrowed by Jezirat Sowabih, or The Brothers islets, the highest or north-eastern being $9\frac{1}{2}$ miles south of Perim island.†

PERIM or Maiyún is a bare rocky island, rather flat in appearance, about 3 miles long by $1\frac{3}{4}$ miles broad, its highest part, which is near the south-east end, being 214 feet above the sea. The surface of the island is grooved with watercourses, and covered with grass and stunted shrubs, the subsoil being sand and conglomerate coral. It has a good harbour an excellent coaling station, at its south-western side, with an entrance half a mile in width.

* See Admiralty charts, gulf of Aden, general, No. 1,012; western portion, No. 66 scale, $m = 0.10$ of an inch; plan of Perim island, No. 2,592, scale, $m = 4$ inches and Perim harbour, No. 923, scale $m = 8.8$ inches.

† See directions on page 82.

Perim is inhabited by a small detachment of troops and telegraph officials sent from Aden, and the Perim Coal Company's officials and labourers. The water used is condensed, there being none on the island. Turtle may be caught on the shores of the harbour during the season when the females land to lay their eggs.

A bank of 16 feet and less extends half a mile off Ras Sheikh Berkúd, the north point of the island, with 4 and 5 fathoms on its outer edge: and off Azalea point, the south-east extreme of the island, nearly 2 cables distant, is a rock having 2 fathoms least water and 4 to 5 fathoms close-to, from which Perim lighthouse bears N.W. by N.

LIGHTS.—From a lighthouse, 38 feet in height, erected on the summit of Perim island, is exhibited, at an elevation of 249 feet above the sea, a white light, which *revolves* once *every minute*, and visible in clear weather from a distance of 22 miles; within a distance of 15 miles the light has sometimes appeared to be continuous. The lighthouse and buildings are enclosed by a loop-holed wall.

From a gray octagonal tower, 30 feet high, erected near the edge of the cliff at Obstruction point, is exhibited at an elevation of 85 feet above high water, an *occulting* white light, visible *seven seconds* and eclipsed *one second*, between the bearings of S. 26° E., through west, and N. 42° W.; in clear weather it should be seen from a distance of 14 miles.

Telegraph and Signal Station.—A Lloyd's signal station has been established on the hill, 214 feet in height, the highest point of Perim island, situated about 4 cables southward of the high lighthouse. The Eastern Telegraph Company have a station here; the rates for messages are the same as at Aden.

There is also a signal flagstaff on Signal hill, west side of Perim harbour, at an elevation of 112 feet above the sea.

Tides.—It is high water, full and change, at Perim and in the straits generally, at 8h, springs rise 5 feet, neaps 3 feet. The flood sets north-west, ebb south-east. The tides are very irregular, both in period and velocity; sometimes in the centre of the strait there is very little ebb, while at others, particularly at night, on full and change, it runs at the rate of 4 miles an hour, creating a strong ripple when opposed to the wind. In the channels the tides greatly depend on the preceding winds; after a fresh north-wester the flood will run for 16 hours, and *vice versâ* after a south-easter; the water at the same time ebbing and flowing on the beach with great regularity.

PERIM HARBOUR, on the south-west side of the island, is divided into two branches, each about 8 or 9 cables in length. The entrance, which is half a mile broad, has a depth of $6\frac{1}{2}$ to 12 fathoms, extending to within half a cable's length of each shore. The north-east arm is considerably obstructed by shoals; the north-west one affords convenient and safe anchorage in from 5 to 6 fathoms, sand and coral bottom. Myrmidon shoal, which somewhat reduced the breadth of the passage to the anchorage, is stated to have been removed by dredging.

LIGHTS.—On Pirie point, west side of the entrance, is exhibited, at an elevation of 44 feet, a fixed *red* light visible 3 miles.

On Murray point, from two beacons, painted white, 100 yards apart, are exhibited *fixed white* lights visible 3 miles; the upper one is 44 feet, and the lower one 34 feet above the sea. These lights in line N. by W. lead through the entrance.

Fixed bright lights are exhibited at night, from the two buoys in the entrance.

Two *fixed* white vertical lights are hoisted on board the Perim Coal Company's hulk, moored in $4\frac{1}{2}$ fathoms at about one cable E.N.E. of the coal stack pier.

Buoys.—The entrance and each side of the harbour is buoyed; can buoys on the starboard hand entering, and conical (or nun) buoys on the port hand. The tops of the buoys are painted white with luminous paint.

Mooring buoys painted red, for swinging and mooring the largest steamers, are placed in the harbour.

Directions.—To enter Perim harbour bring the lights or beacons on Murray point in line, bearing N. by W., and steer for them, passing between the lights shown from the Lee and Pirie point buoys; and when the signal flagstaff in west arm bears W.N.W., steer for it, anchoring where convenient, or going alongside the coal hulk.

Care should be taken to guard against the current which occasionally sets across the entrance of the harbour, according to the direction of the wind; and when the vessel is abreast Pirie point her way should be checked.

Pilots.—By hoisting the pilot flag by day, or burning a blue light at night, as soon as the high lighthouse is sighted, the attendance of a pilot well outside the harbour, is assured; corresponding signals, in answer, will be made from the shore.

Coal.—Welsh coal can be obtained from the hulk and stores of the Perim coal company, and put on board at the minimum rate of 30 tons per hour. Vessels drawing 24 feet can go alongside the hulk, and there is no liability of interruption from bad weather.

Provisions, stores and water may also be obtained.

STRAITS OF BAB-EL-MANDEB.—**Directions.**—The strait on either side of Perim island may be taken.

Steam Vessels commonly take the small strait, the navigation of which has been rendered easy by the establishment of the light on Obstruction point. This light should be kept well in sight when approaching Perim island, to clear the shoal ground off the north side of it, thence steer to pass 3 or 4 cables eastward of the light.

Azalea point is foul, to the distance of 2 cables.

For **Sailing Vessels**, with a fair wind, the small strait is also the most desirable, having moderate depths for anchoring in the event of the wind falling light or calm.

The island shore should be kept, as Oyster rock on the opposite side is low, and at night difficult to distinguish when approached from the northward, as higher land is in the background; but when approached from the south-eastward, it shows out well against the horizon, and can be kept in view until nearly abreast of it.

Working through.—If a vessel has to work through, the Small strait is preferable, there being good anchoring ground everywhere, in from 8 to 16 fathoms, the tides being more certain, and in the event of accident, there being good anchorage on either side of Ras Bab-el-Mandeb.

Should the Large strait be used, care should be taken to keep well over towards Perim, when anchorage may be obtained should the wind fail.

During the strong southerly gales, which blow in the southern part of the Red sea in the months of December, January, and February, vessels should never attempt to work down to the strait in their strength, but wait for a lull, and then work with the tides, day and night, anchoring close in-shore on the flood.

On approaching the strait from the eastward, a small peak will first be seen at a distance of 25 to 30 miles in clear weather; on nearing, others gradually rise till they become united; this is the land about Ras Bab-el-Mandeb.

At the distance of 15 to 20 miles, Perim, with its lighthouse, will be seen from the deck, to the southward of the peak first seen; its

outline is even and unbroken, and cannot be mistaken for the high land of Bab-el-Mandeb, which has many irregularities.

Vessels entering the strait during north-westerly winds should work off and on the Arabian coast in soundings, anchoring on the ebb, if found too strong to work over. At night the soundings are an excellent guide, and a vessel working between 15 and 35 fathoms will keep to the Small strait, the edge of the bank off-shore being precipitous.

Vessels on the Arabian coast, between Aden and the strait, in the months of June, July, and August, will often experience thick hazy weather; if the wind is from the N.W., fresh gusts of wind may be looked for, especially in-shore; and sometimes the wind will change quite suddenly, and blow fresh from the southward. During these months it is very necessary to have good sails bent, and care should be taken to be on the bank of soundings at the turn of tide, to enable a vessel to anchor in shallow water, should it fall calm, or the stream be too strong for her. On the African coast the gusts from the shore are also violent at times. *See* page 18.

With ordinary precaution there is no danger. The only dangerous shoals in the gulf of Aden are the reefs off Zeila, on the African coast, and the bank of broken ground between Ras-al-Ara and Ras Kaáu on the Arabian coast, which extends from the shore from 2 to 4 miles; off this latter bank a vessel should not stand into less than 15 fathoms by day, and 20 fathoms by night, the water shoaling suddenly. In the day-time the edge of the reef is plainly perceptible.

RAS BAB-EL-MANDEB, or the cape of the Gate of Affliction, is a prominent cape, which forms the south-western extremity of Arabia, and the north-eastern shore of the entrance to the Red sea. When seen from the eastward the land assumes the shape of a wedge, and is visible from the deck, on a clear day, at a distance of about 35 miles. Its highest peak, named Jebel Manhali, or Quoin hill, rises to 886 feet above the sea, whence it slopes to the southward, and terminates in a low point. Off the extremity of the cape numerous rocky points project about half a mile from the shore, which form shallow bays, affording shelter to small craft; here the traders from the African coast sometimes land their sheep, and drive them to Mokha, to avoid a tedious voyage back against southerly winds.

About $1\frac{1}{2}$ miles north-eastward of Jebel Manhali is a range of hills, named Jebel Heikah, extending about 3 miles in a northerly direction, of less elevation, and an irregular outline: the intervening land is low, sandy, and barren. A little to the eastward of the cape is a square dark hill, named Turbah, on which are some ruins, and an old village: the steep rocky points here form a sheltered anchorage. Jebel Manhali, and the other hills adjacent, are of volcanic origin.

Water.—There is a well of brackish water in the largest valley close by.

Sheikh Malu or Oyster island, is a small rocky island lying one cable off cape Bab-el-Mandeb; it is also known as Pilot island.

There is sheltered anchorage during northerly winds in from 6 to 7 fathoms water, in a bight eastward of the island, and about 2 or 3 cables from it.

Ras Sheikh Syed, the northern and lower cape of Bab-el-Mandeb is 15 feet in height, and situated at about one mile northward of Oyster island; during southerly winds vessels can anchor under the point in 6 or 7 fathoms water, with Oyster island seen over it.

GHUBBET al HAIKAH.—The coast from Ras Bab-el-Mandeb extends in a north-easterly direction about 7 miles, when it turns abruptly eastward for about 25 miles, to Ras-al-Ara, forming Ghubbet al Haikah, which has low and sandy shores, and affords a convenient and smooth anchorage for vessels working into the Red sea against the strong north-westerly winds in June and July. A vessel standing into this bay should not approach nearer than 10 fathoms by day, or 14 fathoms by night, to avoid the 3-fathom patches, which lie about one mile from the shore. The bank of soundings extends to 12 or 14 miles off this bay.

Water.—At Sakiah, in the western part of the bay, is a group of palm trees, and 2 miles eastward is a well of good water; wood fuel is abundant.

Jebel Arrár or Chimney peaks.—At about 8 miles within Ghubbet al Haikah is a range of hills, named Jebel Hejáf, extending for about 16 miles in a parallel direction; they are of a dark aspect, irregular in their outline, and terminate in a bluff to the westward. Behind these is a range of lofty mountains, named Jebel Arrár, better known by the name of Chimney peaks, from their irregular and peaked outline; these mountains when seen from a great distance have sometimes been mistaken for Ras Bab-el-Mandeb; they extend

in a north-west direction for about 18 miles, and terminate south-eastward in a barn-shaped hill, with a peak in the centre ; they have a dark, gloomy aspect, and are backed to the northward by a higher range of mountains.

RAS-AL-ARA, the southern point of Arabia, is a very low, sandy rounded point, difficult to distinguish at night, and is one of the most dangerous points on the coast, being in the direct route for vessels proceeding to or from the Red sea, and having a bank of hard sand extending nearly $3\frac{1}{2}$ miles off-shore to the south-eastward of it, with one or two dangerous rocky patches with only 6 feet of water. Several vessels have been wrecked here. This bank, which extends as far as Khor Omeirah is the more dangerous, as the water suddenly shoals from 15 fathoms ; and a ship with good headway would hardly have time to get a second cast of the lead before touching the ground : it is advisable not to approach nearer than 15 fathoms by day and 20 fathoms by night.

Anchorage.—There is good anchorage in the small bay to the westward of Ras-al-Ara, affording shelter against the strong winds of the north-east monsoon : the coast around the bay is rather steep.

Water.—There is a supply of fresh water in this bay near a grove of date trees.

Caution.—The natives on this part of the coast should be avoided, being of a hostile and ferocious character.

Khor Omeirah (Amran) is a remarkable inlet, situated 13 miles eastward from Ras-al-Ara, $4\frac{1}{2}$ miles long by $2\frac{1}{2}$ miles broad : it is almost land-locked by a narrow spit of sand which projects from its eastern shore, and forms its southern boundary, leaving a narrow entrance to the westward, with 6 feet water ; this depth does not increase for 2 miles, being in some places more shallow, when it opens out into a fine basin, with 3 to 6 fathoms at low water ; at high water the low southern spit of sand is nearly covered.

Jebel Kharaz, or the Highland of St. Antonio, reaches the height of 2,772 feet above the sea at its northern peak, while its southern bluff rises 2,085 feet almost immediately northward of Khor Omeirah. On the western side of the summit of the north peak, is a ruin of roughly hewn stone, without date or inscription, but sufficiently remarkable to give a name to the mountain amongst the superstitious natives, by whom it is called Jebel Jinn, or Genii hill, on account of some mystery attached to the building. The mountain is composed of limestone and granite.

RAS KAÁU, 68 feet high, is a projecting point situated 17 miles eastward of Khor Omeirah, and from its dark appearance is known by the name of Black cape. At 3 miles inland is the remarkable saddle hill, named Jebel Kaáu, rising 798 feet above the sea; three other small hills lie south-westward of it near the coast.

Sandbanks.—Between Khor Omeirah and Ras Kaáu, a dangerous sandbank extends 4 miles off-shore, and no vessel should approach within the depths of 20 fathoms; for although the limit of the bank may sometimes be seen from the masthead of a vessel, much caution is always necessary in approaching this part of the coast, as the water shoals very suddenly. On some parts of the bank, the water breaks at low-water springs.

Off-lying reef.—A reef with a depth of about 2 fathoms, on which the French vessel of war *Parseval* struck, (1887,) is stated to lie with Ras Kaáu bearing about N. $\frac{1}{2}$ E., distant 4 miles; depths of 4 to 8 fathoms are reported one cable seaward of it.

Coast.—The whole of the coast between Ras Al-Ara and Ras Kaáu is low and sandy, with a few bushy shrubs, while here and there a rocky point occurs. Eastward of Ras Kaáu it is still flat and sandy for a distance of 18 miles, as far as Ras Imran, forming Bander Imrán, a bay nearly 5 miles deep; the land towards the interior is low and flat, and covered with bushes. The soundings in the bay are regular, there being 12 and 13 fathoms at 2 or 3 miles off-shore, and there are no dangers; the bottom is principally clay and sand, with an occasional patch of rock.

BANDER IMRAN. (Amran).—Ras Imran is the south-west extreme of a small rocky island, divided from the mainland by narrow channels, almost filled up with rocks; off its western side are three small rocks of considerable elevation, with deep water close outside them. The point of the mainland is a rocky promontory, rising 712 feet above the sea, which projects, including the island, $2\frac{1}{2}$ miles from the general line of coast, and forms the western limit of Bander Fukom.

Anchorage.*—There is excellent shelter from easterly winds in Bander Imran under Ras Imran, which point forms the eastern boundary of the territory of the As-Subaiha tribe; these people, though numerous, numbering about 12,000 persons, are little known; their general character is, that they are suspicious of strangers, revengeful, and treacherous.

* See Admiralty plan of Aden and adjacent bays, No. 7; scale, $m = 1\cdot0$ inches.

Bander Fukom (Feikam) is a bay about 5 miles broad, formed between Ras Imran and the point of Jebel Ihsan. Near its centre is Jezirat-al-Juhub, a small round island, with a rock, barely covered, at about 800 yards E.S.E., with from 5 to 6 fathoms water between it and the island; a shoal patch extends a short distance north-west of this rock. On the western side of the bay is the tomb of Sheikh Sammara, surrounded by a few huts. Near the tomb is Abu Shamma, a small, dark-coloured peak, and to the westward of it are two anchorages for boats. The land surrounding the bay is a low, dreary, swampy tract; the depths in the bay are regular, varying from 3 to 6 or 7 fathoms, with a bottom of sand and mud.

Jebel Ihsan (Hasan) is a mountainous mass of granite, forming a peninsula 6 miles long by 3 miles in breadth; its highest peak, in the form of a Sugar-loaf, rises to 1,237 feet above the sea. This promontory has numerous projecting points, to each of which the Arabs give a name: to the south-westward are Ras Fukom and Ras Alargah; the most southern, Ras Mujallab Heidi, forms the western limit of Bander Sheikh, a small bay. Ras Abú Kiyamah divides this bay from khor Kadir. On the southern and eastern sides of this promontory are nine rocky islets, nearly connected with the main at low-water springs: one is in the small bay of Bander Sheikh, to the eastward of Ras Mujallab Heidi; two lie in the middle of the entrance to khor Kadir, northward of which extends a reef of rocks for the distance of a quarter of a mile; another, Jezirat Salil, south-eastward of which is a rock awash, lies off Ras Salil, the south-east point, and five of them off the north-east bluff, about one mile from the shore. The bays and islands around the peninsula are safe to approach, the depths decreasing gradually towards the shore.

The white tomb of Sheikh Kadir is about 1,100 yards northward of the extreme point of Ras Abú Kiyamah. Near this spot the Al-Akarib tribe deposit coffee, cotton, and a few other articles of merchandise, in readiness for the small trading boats lying in Bander Sheikh and khor Kadir, the only two ports belonging to them.

At the eastern end of Jebel Ihsan is a remarkable double peak of granite, 700 feet in height, which, from its peculiar shape, is known by the name of the Ass's ears. The outline of the whole of Jebel Ihsan is very picturesque; a deep ravine winds through the hilly track from Bander Fukom to Bander Sheikh. The land to the northward is low, and immediately at the back of the mountains a deep inlet, named khor Bir Ahmad or Seilán, extends 3 miles to the westward.

Bir Ahmad, is a small fort and village, situated about 3 miles from the beach, and $6\frac{1}{2}$ miles north of the Ass's ears, containing about 250 inhabitants ; it is the residence of the chief, or sultan of the Akarib tribe. About 2 miles north-eastward of Bir Ahmad is the village of Seilán.

The territory of this tribe does not exceed 20 square miles, with a population of about 600 males ; they are a treacherous race, and not to be trusted ; their territory is bounded on the north-east by the Abádil and Haushábi, and to the westward by the Subaiha tribes.

The chief produce of the country is jowari (millet), of which quantities are exported.

ADEN PENINSULA is high and rocky, extending 5 miles in length, in an east and west direction, by 3 miles in breadth, the most elevated part of which bears the name of Jebel Shamshan, so called from the turreted peaks on its summit, the highest of which reaches 1,776 feet above the sea, and is visible at a distance of 60 miles in clear weather ; it is almost entirely composed of limestone. The peninsula bears much resemblance to the rock of Gibraltar, and came into the possession of England in 1839. Its rocky heights are more elevated, and much more peaked, than that celebrated European fortress. The peninsular promontory of Aden is almost divided from the mainland by a creek on the eastern side of this harbour, named Khor Maksa, similar to that behind Jebel Ihsan, which gives these lofty promontories, not very unlike in appearance, the aspect of two sentinel islands guarding the approach to the magnificent bay they enclose.*

Numerous rocky points project from this mass of mountains, forming small bays and shelter for boats. Commencing on the north-western side, the point of Hejáf forms the southern and western limit of the Inner harbour ; immediately off it lies Jeramah rock, marked by a beacon. Half a mile to the westward of Hejaf is the rocky point of El Ainah, and a quarter of a mile beyond is the island Sheikh Ahmad, or Flint rock ; 500 yards farther west is the point Ras bin Jarbein : rather more than half a mile beyond is Ras Marbut, or Steamer point ; and at the same distance again is the extreme west point of the promontory, named Ras Tarshein, the high peak to the eastward of which rises 988 feet above the sea. Turning thence south-eastward the same bold coast continues for $2\frac{1}{2}$ miles, as

* See plan of Aden anchorage on chart No. 7 ; scale, $m = 6.5$ inches.

far as Round island or Jezirat Denafah ; one mile beyond which is Ras Sinailah, the southernmost point of the peninsula.

The territory of Aden is under the administration of the Government of Bombay, and comprises an area of about 35 square miles.

The Political Resident resides at the Camp, Aden town.

Town.—The town of Aden is situated on the eastern side of the peninsula, near Aden east bay, and about 4 miles by the road from Aden harbour. It lies on a plain, little more than half a mile square, encircled on the land side by singularly pointed hills, with its eastern face open to the sea, while immediately in front is the rocky fortified island of Sirah. This island, which commands the eastern bay and town of Aden, is a triangular rock about 430 feet high towards the southern end, half a mile long by 600 yards wide : the passage which formerly existed between it and the main is now filled by sand, consequently at low water it is joined to the coast.

Trade.—Aden was declared a free port in 1850, since which it has engrossed nearly the whole of the coffee trade formerly enjoyed by Mokha. The principle articles of export are skins, feathers, gums, &c., brought from the African coast ; imports chiefly coal, cotton goods, cattle, sheep, malt liquors, wines and spirits. The aggregate value of the trade at Aden, 1866, was about 3,000,000*l*. 1,704 vessels entered the port, aggregate tonnage 2,559,840. Supplies, *see* page 91.

Population.—The population in 1881 was 35,000.

Caution.—Aden is situated in the territory of the Abádil tribe, which is said to number about 10,000 souls, who are not friendly towards Europeans ; it is not advisable, therefore, to land on the western shore of Aden West bay. The religion of the Abádil tribe is Mohammedan, and they are, apparently, very strict observers of their creed.

Owing to several wrecks having occurred on this coast, the British political authorities here have entered into treaties with the Arab chiefs to respect wrecked vessels, their crews and cargoes.

ADEN WEST BAY.—Bander Tauwahi, or Aden West Bay, more generally known as Aden Back bay, is formed by the peninsulas of Jebel Ihsan and Jebel Shamshan. It is about 8 miles broad from east to west, by 4 miles deep, and is divided into two bays by a flat, which extends half a mile southward of Aliyah island.

The depths of water in the centre of Aden west bay are from 3 to 4 fathoms, decreasing gradually towards the shore ; across the entrance

the depths are $4\frac{1}{2}$ to 5 fathoms, and at a distance of 2 miles outside, 10 to 12 fathoms; bottom sand and mud, both inside and outside the bay.

Light Vessel.—From a light-vessel moored off Ras Marbút, in 18 feet at low water, is exhibited at an elevation of 39 feet above the sea, a *flashing* white light, showing a *flash every twenty seconds*, and visible in clear weather from a distance of 10 miles. The vessel is painted red, with a red ball at the masthead, and exhibits a red flag during the day; and at night, on a vessel entering, fires a gun. See light on Ras Marshigh, page 92.

Outer Anchorage.—There is anchorage for heavy-draught ships, in 6 fathoms, in Aden West bay (Aden road), with the light-vessel bearing N.N.E. and Round island S.E. by E. $\frac{1}{2}$ E. Vessels may anchor in 4 fathoms, at half a mile westward of the light-vessel. A ground swell at times rolls into this bay during the period of the south-west monsoon.

Tides.—The tides in the bay are very irregular, being influenced by the currents outside. It is high water, full and change, between 7h. 30m. and 9h. 30m.; springs rise 7 feet, neaps $4\frac{1}{2}$ feet.

Aden Harbour lies between the light-vessel and the entrance to the inner bay. There is a depth of about 24 feet at high water springs over the bar; vessels of 20 feet draught can lie afloat between Ras-bin-Jarbein and Flint rock, and there is room for one vessel of 23 feet draught.* On the south shore there are several piers, the telegraph and post offices, coaling depôts, and the military establishments near Ras Marbút or Steamer point.

Tide Signals.—On the approach of a vessel to the harbour, a signal is shown at the mast-head of the light-vessel indicating the depth of water in the channel, and also whether the tide is rising or falling: Letter C, Commercial Code, hoisted at the ensign staff denotes flood tide.
Letter F, Ditto ditto ditto ebb tide.

At high, and also at low water, the pendants are hoisted below the flags at the mast-head, showing the depth of water in the channel.*

Pilots.—By hoisting the usual signal a pilot may be obtained. In consequence of the increased number of steam vessels frequenting the port of Aden, ships of war entering the harbour employ local pilots.

Directions.—The coast of Aden peninsula is bold to approach, and a vessel may choose her own distance. A vessel from the west-

* H.M.S. *Jumna*, March 1882, moored with her stern to the French Company's moorings, and head to the westward, with the anchor in 22 feet, had from 27 to 28 feet at low water, near springs.

ward may steer direct for the light-vessel, passing northward of it, and thence to the harbour if the state of tide admits; the depth on the bar is shewn from the light-vessel. Vessels from the eastward have the advantage of Marshigh light, and should pass about one mile southward of it, to clear Ras Sinailah and Round island; then, after passing Ras Tarshein at about one third of a mile, may steer for the light-vessel, as before. A vessel working into the bay, towards the anchorage, may stand boldly across in any direction, being guided by the lead, until the light-vessel is reached, to the northward of which the depth becomes less, and short tacks must be made, there being only 18 feet at low water on the bar. It is advisable always to moor in Aden harbour, the anchorage being rather confined; and good scope of cable should be given, in consequence of the sand squalls from the northward and eastward after sultry weather, that give but little warning.

Supplies.—Provisions of every description are procurable from the stores in Aden harbour; fruit and vegetables are scarce. Distilled water may be purchased at about 13s. per ton. The hospital, and also the Institute, admits sailors at the rate of one rupee per day. There is no factory capable of doing very heavy work, but small repairs may be effected. There is no dock accommodation, but a slip way 75 feet in length, with a carriage, and 7 feet depth at high water, will take up craft of 150 tons burthen.

Coal.—About 25,000 tons of coal are usually in stock at Aden, about one half of which belongs to the large Steam Ship Companies. Private merchants have large quantities stacked in the Inner bay within Flint rock. There are great facilities for coaling in the harbour, and no interruptions, but at times, especially during south-west monsoon period, delays occur when coaling in the bay. Coaling is by lighters.

Telegraph.—There is telegraphic communication between Aden, and Perim, Suez, England, &c.; also Bombay, Zanzibar, and the cape of Good Hope (the home rate is 3s. 9d. per word); there is also rapid mail communication with all parts.

The Observation Spot on Ras Marbút is in lat. $12^{\circ} 47' 11''$ N., long. $44^{\circ} 58' 31''$ E., and the local telegraph office in lat. $12^{\circ} 47' 16''$ N., long. $44^{\circ} 59' 7''$ E.*

The Inner Bay lies eastward of Ras Hejaf; its entrance, between the sandspit off the island of Aliyah and Ras Hejaf is, at

* See Supplement 1885, to General Instructions for Hydrographic Surveyors.

low water, about a third of a mile across ; off Ras Hejaf is Jeramah rock, marked by a beacon ; the depths across the entrance, and in the centre part of the bay, are from 2 to $2\frac{1}{2}$ fathoms, decreasing towards the shore. This inner bay is used solely by native craft.

There are several islands in the Inner bay : the eastern and principal one, named Jezirat Sawayih, is 300 feet high, and almost joined to the mainland at low-water springs : the others are named Marzúk Kabir, Keis al Hamman, Falfetein, and Feringi ; and on the sandspit at the north side of the entrance are two small islets named Jam Ali, and Aliyah ; in Aden anchorage, about 2 cables distant from the peninsula, is the island Sheikh Ahmad, or Flint rock, with a depth between of 2 fathoms.

RAS MARSHIGH, situated 2 miles eastward of Ras Sinailah, is a narrow projecting cape, forming the south-eastern point of Aden promontory, and affording shelter to the anchorage of Bander Daras, which lies between it and Ras Taih.

Between Ras Marshigh and the island of Sirah the curve of the land forms Bander Hokat, a small sandy bay, and another to the northward between the north point of the island and Ras Kútam, close to Aden town.

LIGHT.—A *fixed* white light, of the first order, is exhibited from a lighthouse 85 feet high, on Ras Marshigh. The light is elevated 244 feet above high water, and should be visible in clear weather from a distance of 20 miles ; it is chiefly of use to vessels making Aden from the eastward. Westward of Aden the light is not visible until it opens off Ras Taih. There is a signal station on the ridge within the lighthouse.

Aden east bay.—Anchorage.—The depths in Aden eastern bay, north-eastward of the town, are regular, so that a vessel may choose her own position in from 5 to 10 fathoms. During the north-east monsoon a heavy swell rolls in ; but from June to August, with the wind from the westward, good anchorage and smooth water may always be found under the island. During these months, if wishing merely to communicate with the authorities, this anchorage may be found convenient, being near the town. The hot dry gusts blowing from over the hills are usually strong and disagreeable.

GHUBBET SEILAN.—From Aden the coast trends northward for 19 miles, then eastward for 12 miles, to Ras Seilan, forming Ghubbet Seilan. The shores of the bay are flat and sandy, particularly in the centre, gradually rising towards Ras Seilan. A low

plain extends into the interior, covered with stunted bushes and patches of the cotton tree and acacia, which latter thrives luxuriantly in this arid soil.*

This part of the coast is inhabited by the Yafai, a numerous tribe said (1833) to number 20,000 persons, spread over an extensive tract of country, and reaching inland to the Jebel Yafai mountains. This range, which rises about 6,500 feet above the sea, extends in an east and west direction, about 25 miles from the shore. The Yafai territory on the coast lies between the Abádil to the south-west and the Fudhli on the north-east at Ras Seilan. In the interior it is mountainous, with numerous valleys, producing coffee, wheat and jowári (millet).

The depths in Ghubbet Seilan are irregular, with a depth of 5 fathoms at about one mile off-shore. Sailing vessels should avoid getting embayed with winds from the eastward. Several vessels have been wrecked here, and plundered by the natives. (Caution p. 89.)

Ras Seilan is a low, round, Sandy point, with few date trees growing near it, and some large trees inland. About $1\frac{1}{2}$ miles northward of the cape is the village of Sheikh Abdalla bin Marbat.

Soundings extend about 10 miles off-shore, dropping suddenly from 40 to 100 fathoms; the 20-fathoms-line averages a distance of 5 miles, decreasing gradually towards the shore. Sand, shells, and broken coral, is the general nature of the bottom.

The COAST.—From Ras Seilan the coast trends in a north-east direction for 22 miles to Karn-am-Kulási (Saddle hill), thence more eastward to Shúkra, with a sandy beach the whole way.

Al-Asala (Al-Salih) is a small town 10 miles north-east of Ras Seilan, and about 2 miles from the coast: population about 500, who are chiefly agriculturists. The country immediately around is well watered and cultivated. South-eastward of Al-Asala the tomb of a Sheikh lies near the beach, and close to it the fishermen draw up their boats. About $6\frac{1}{2}$ miles in the interior is the village of Al Khor, surrounded by low hills, on which small towers are erected for its protection.

Barrow Rocks are two dangerous rocky reefs, with 2 fathoms water on the northern patch, and one fathom on the southern; they lie $1\frac{1}{4}$ miles apart, and 2 miles distant from the coast, rather more than half-way between Al-Asala and Shúkra, from which latter place the northern reef bears S.W. $4\frac{1}{2}$ miles distant.

* See Admiralty chart, gulf of Aden, western portion, No. 6b.

To avoid these rocks do not come under 15 fathoms water while the dark saddle-shaped hill Karn-am-Kulasi bears between N.N.E. and N.W. by N. There is a channel $1\frac{1}{4}$ miles wide, with 6 fathoms water, between the rocks, and the reef which fronts the shore at a distance of about one mile.*

SHUKRA (SUGHRA), the principal port of the Fudhli territory, is a small village, with a stone building called the castle, being the residence of the sheikh for several months in the year. It is situated about a quarter of a mile from the beach, on the borders of a plain commencing at the foot of Jebel Kharazi, its eastern limit, having on the north the valley leading to Wadi Bahrein, and a barn-shaped hill with a peak on its western end; a number of granite hills, terminating in a small eminence, form a point to the westward at some distance from the sea.*

Jowari (millet) is cultivated here in large quantities, and in the vicinity of the village is a large grove of date trees.

The Fudhli tribe is reckoned at 15,000 persons; as a general rule they are not to be trusted.

The Fudhli territory is stated as extending in a northerly direction for a distance of 80 miles, bounded on the east by Makátein, and the Aulaki (Urlaji) tribe, and reaching as far as Ras Seilan on the west, comprising about 70 miles of coast. The country is chiefly mountainous, Jebel Kharazi or Aris, a high range 16 miles north-eastward of Shukra, attaining 5,442 feet above the sea. The Wadi Bahrein winds through this range of mountains, abundantly supplied with streams which flow into an extensive lake, whence the valley takes its name. The largest village in this district is Mein, with a population of about 1,500, said to be 36 hours' journey to north-west of Shúkra. The natives are a fine, bold looking race of men, and many of them inhabit caves in the mountains; their religion is a lax state of Mohammedanism, the fast of the Ramazán passing almost unnoticed.

Supplies.—Good water may be obtained at Shúkra, also bullocks, sheep, poultry, onions, and pumpkins.

Trade.—The chief exports of Shúkra, are ambergris, coffee, jowári, and ghi, or clarified butter. No fruit is grown, except the plantain.

Anchorage.—A small harbour for boats, with from one to $2\frac{1}{2}$ fathoms water, is formed by a break in the reef, which fronts the coast at a distance of half a mile. The mark for entering this

* See plan of Sughra, scale, $m = 1$ inch., on sheet of plans of anchorages on the coast of Arabia, No. 10.

harbour is, the castle in one with the peak on the west end of the barn-shaped hill inland. There is very good anchorage in 7 to 9 fathoms, at 4 to 5 cables from the reef, with the Sheik's house bearing N. by E., and Karn-am-Kalasi about W. by N.

Tides.—It is high water, full and change, at 8h. ; rise at springs, 6 feet ; the flood sets to the westward.

The **COAST** from Shúkra eastward to Makátein, a distance of about 44 miles, becomes irregular, jutting out into small points ; for the first 13 miles it is flat, until Jebel Kharazi is approached, which gradually ascends from the coast. At 17 miles eastward of Shúkra, there is a ruin on the coast, with a village northward of it 3 miles in-shore, and a tomb, about 7 miles farther to the eastward.

The soundings off this part of the coast extend a very short way from the shore, there being 20 to 30 fathoms at a distance of about one mile.

Jebel Fudhli is the name of the lofty range of mountains extending about 20 miles in an east and west direction, at about 5 miles inland, and parallel to the coast line ; its summit is singularly broken into gables, peaks, and bluff points. The most conspicuous gable is rather to the west of the centre of the range, and rises 3,900 feet above the sea ; it is remarkable for an opening like a great embrasure or cleft, which gives it, from the eastward, the appearance of a double peak, whence it descends almost perpendicularly towards the sea. The highest point of the range is Jebel Kharazi or Aris, to the westward, and reaches 5,442 feet above the sea ; from this it declines slightly to the eastward, where a barn-shaped mountain attains a height of 3,950 feet. The valleys intersecting this range of mountains are thickly covered with vegetation.

Makátein Seghir, or the lesser, is a small anchorage for boats, formed by a projecting point at 5 miles westward of Makátein. The water is shallow, and the bottom rocky.

MAKÁTEIN, in longitude about 46° 26' E., is an anchorage formed by a slight projecting rocky point of the coast, whence four rocky islets and a sunken rock project to the southward 500 yards. A rocky patch of 3 feet, lies one a third of a mile S. by W. of the islets, with a patch of 4 fathoms at 3 cables S.S.E. of it ; another patch, with 1½ fathoms lies nearly half a mile east of the outer islet. Makátein is resorted to by native trading vessels for shelter during the north-east monsoon ; the anchorage is on the west side of the islets, where the water is perfectly smooth when blowing hard from the

north-eastward. The islets are white from the guano deposited by sea birds, which frequent them in great numbers, and which is used by the natives for agricultural purposes.*

Makátein may be easily known by two black hills immediately to the eastward, and close on the sea; there are others 3 or 4 miles further east, but not so distinctly separate as the former; when approaching from the eastward, they resemble one long hill. At 500 yards north of the point, abreast the islets, is a black ruin.

Tides.—It is high water, full and change, at Makátein, at 9 h.; springs rise 6 feet; the flood sets to the westward.

The COAST.—At 6 miles eastward of Makátein, is a rocky point, named Sambahia, and for 13 miles beyond, as far as Ahwar, a low sandy coast with rocky points prevails; it is also low to the westward of Makátein, and in many parts continues low for some miles inland, almost reaching the border of the Fudhli mountains.

There are no dangers on this portion of the coast, the 10-fathoms line is about one mile, and the 100-fathoms line about 6 miles from the shore.

AHWAR (HOWAIYAH) is a town 5 miles inland, situated on a wide plain, bounded on the north by high mountains; the tops of the houses only are perceptible from a vessel in passing. It is the principal residence of the chief of the Aulaki tribe, with a population of about 5,000, chiefly agriculturists.

The Aulaki territory extends about 55 miles along the coast, between Makátein and Wadi Sanam, and is said to reach 200 miles inland. The coast is very flat, but about 35 miles inland is a high mountainous range of very irregular outline. The tribe could muster from 7,000 to 8,000 fighting men.

Supplies.—An abundant supply of good water may be procured from Ahwar, also bullocks and excellent fish.

Ras Aulaki (Urlaji) is the low sandy point fronting Ahwar, on which stands the village of Hauta.

Sheikhah Hurba.—The tomb of Sheikhah Hurba, a female devotee, is 21 miles eastward of Hauta: this ancient shrine, near the beach, is a conspicuous object, being whitened, and can be seen for several miles. Wadi Sanam, the eastern limit of the Aulaki territory, is 7 miles eastward of this tomb.

* See plan of Makátein, scale $m = 1$ inch, on the sheet of plans of anchorages on the coast of Arabia, No. 10.

A Shoal, composed of sand, with a depth of about 16 feet, on which the French transport *Dives* touched, is stated to lie about 3 miles off shore, with Sheikhah Hurba bearing N. 28° E., and Black hill N. 12° W.

Coast.—Twenty miles eastward of the tomb of Sheikhah Hurba is the mosque of Sheikh Abdurrahman Baddas, or Irka, and a small fishing village, standing on a low, round sandy point.

The coast from Hauta is nearly straight to the village of Sheikh Abdurrahman, thence it turns north-eastward to Ras-al-Ghusáin (Kosair) about 25 miles, and is low and sandy.

The depths off this part of the coast, and as far eastward as Ras Safwan, are regular, the 20-fathoms line being about 2 miles, and the 100-fathoms line about 6 miles off-shore : the bottom is sand, coral, and shells.

Ras Safwan, a slightly projecting point, is thinly covered with bushes on its extreme edge.

The sounding off shore between Ras Safwan and Ras-al-Ghusáin are also regular, extending from 4 to 6 miles, the 20-fathoms line being about 2 miles.

Haura, a small village north-eastward of Ras Safwan, is a place of no note.

Jebel Makanati is a projecting bluff, 4 miles north-eastward of Ras Safwan, forming with that point a small bay suitable for boats to anchor in. This whitish-looking bluff, elevated about 200 feet above the sea, is veined by dark strata, and terminates in sandhills ; a rock lies close off it. The extensive valley of Wadi Maifáah lies at the eastern foot of the Humeiri range, and to the northward of the range, and apparently in a prolongation of the Wadi Maifáah, is the remarkable ruin named Nkab al Hajar.

The territory of the Diyabi tribe extends along the coast for about 36 miles, from Wadi Sanam to Ras-al-Ghusáin, and inland to the northward of the Humeiri mountains. The tribe number about 800, who bear a bad character.

Jebel Humeiri is a range of hills abreast of Ras Safwan, and form the leading feature of this part of the coast, extending from 25 to 30 miles in a north-east direction : its highest central peak, about 16 miles northward of Ras Safwan, rises to a height of 5,284 feet. The aspect of the whole range is dismal and rugged ; when seen from either the south-east or south-west its summit resembles the roof of a barn, and cannot be mistaken by a vessel approaching, on these bearings.

Ras-al-Ghusáin (Kosair), is a low rounded sandy cape, 7 miles eastward of Ras Safwan, and has or had two large trees near the shore.

GHUBBET AIN.—Between Ras-al-Ghusáin and Ras-al-Aseida, a distance of 22 miles, the coast forms a bay 6 miles deep, named Ghubbet Ain; on its shores are situated the villages of Ain-Abú Mabad and Ain-Jowari, the former consists of a mosque and about 100 huts; the latter of about 70 huts; springs of water (as their name Ain denotes), date trees, and jowari abound. Farther eastward is the small fishing village of Jilláa (Gillah), and the anchorage of Bal-Haf

The depths in this bay are 20 fathoms at 4 miles off-shore: towards the eastern side it is deeper, where there are depths of 100 fathoms within 3 miles of the shore.

Ras-al-Aseida, the eastern point of Ghubbet Ain is conspicuous, from having at its extremity a dark, rocky, conical hill, 160 feet high, and not unlike a haystack, discernible at a distance of 5 or 6 miles. The point forms three projecting rocky points, off which the water is deep, there being 40 fathoms close in-shore.

Bal-haf.—In a small bay to the westward of Ras-al-Aseida is the town of Bal-haf, so named from a sheikh whose burial-place is contiguous. The bay affords good shelter during easterly winds; a sharp look-out must, however, be kept in the event of the wind changing to the westward.*

Trade.—There seems to be a small trade here, consisting principally in importations of coffee, cotton cloths, and coarse silks, brought from Makalleh, Ash-shehr, and Aden. The tower is garrisoned by a few Wahidi soldiers, who levy tolls on all merchandise landed. There is no fresh water but what is brought from a distance.

Tides.—It is high water, full and change, at 8h. 30m.; springs rise 5 or 6 feet; flood sets to the westward.

Directions.—The nature of the bottom in Ghubbet Ain is sand, entirely free from rocks, and the soundings regular; but care must be taken when standing towards Bal-haf to avoid the rocky bank which extends half-a-mile from the shore, between one and 3 miles westward of Ras-al-Aseida. Entering the bay with an easterly wind, the point should be rounded at a distance of about 2 cables, being prepared to meet the sudden gusts of wind which may be expected on passing it, and which frequently blow with considerable violence.

* See plan of Bal-haf, scale, $m = 1.0$ inch, on sheet of plans of anchorages on the coast of Arabia, No. 10.

From abreast the point, keep Black Barn hill a point on the starboard bow, in making for the anchorage. As the bank of soundings is very steep, a good scope of cable is necessary to prevent a vessel dragging her anchor into deep water.

The COAST to the eastward of Ras-al-Aseida takes an easterly direction for 30 miles, as far as Ras-al-Kalb; for the first half of the distance, to Ras Makdaha, the shore is irregular, with projecting points, and small intervening bays.

Ras Ratl, 5 miles eastward of Ras-al-Aseida, a remarkable round volcanic promontory, is considerably elevated, with a hollow in the centre, apparently like a crater; on each side of the point is a bay suitable for boats.

Jebel Husn Ghoráb, 5 miles eastward of Ras Ratl, is a square-shaped, dreary-looking, brown hill, 456 feet in height, with steep sides. On the summit are some very interesting remains of an ancient city,* from which it may be assumed that it was formerly one of the most important places on the Arabian coast.

BANDER HUSN GHORÁB, a small, secure, and well-sheltered bay $1\frac{1}{2}$ miles wide, by one mile deep, lies immediately eastward of the black barn hill, Husn Ghoráb, which forms its south-west point. Off the eastern side of the bay a reef extends, reducing the entrance to rather more than three-quarters of a mile. At the bottom of the bay is the square tower and hamlet of Bir Ali, or the well of Ali, and several adjoining hamlets.

Halánia island, a rocky limestone plain, three-quarters of a mile long by half a mile broad, lies about one mile southward of Husn Ghoráb point, separated by a narrow channel; several rocky points project from it. Westward of the island, there is tolerable shelter from easterly winds.

Sharan is a circular, table-topped, sandstone hill 300 feet high, lying $3\frac{1}{2}$ miles eastward of Husn Ghoráb, and remarkable for a cavity or crater-shaped hollow within, filled with water, called Kharif Sharan, the edge of which is fringed by an overhanging bank of mangrove trees: the diameter of the cavity is about 2,500 yards, and is reported by the Arabs to be fathomless; the water is very salt.

Directions.—In standing into Bander Husn Ghoráb, after rounding Halánia island, in 8 or 9 fathoms, steer for the square tower of Bir Ali, taking care not to bring it to the northward of N. by E. $\frac{1}{2}$ E.,

* See Bengal Asiatic Journal for 1834.

in order to avoid the reef ; anchoring in 4 fathoms about a quarter of a mile off-shore. Approaching the bay from the eastward a vessel should not approach the eastern point under a depth of 12 fathoms. During the south-west monsoon a vessel may keep more to the westward, bringing the black barn-shaped hill of Husn Ghoráb nearly South ; there is no danger on this western side. The bottom is generally clear sand, with an occasional patch of rock.

GHUTDHRIN (Kadhrein) ISLETS lie about one mile off shore, 4 miles east of Husn Ghoráb, and nearly abreast of Ras Khada, a rocky point at the foot of Ras Sharan ; there are one large and two lesser rocks, having a channel between the largest and least 300 yards wide, with a depth of 12 fathoms ; also a channel between them and the shore, with 7 or 8 fathoms : between the two smaller ones it is almost dry at low water.

Sikkah, or Jibus, is another small island, rising 450 feet above the sea, and lying 5 miles southward of Ras Khada ; it may be seen at a distance of 30 miles. The summit is flat, and white from the guano deposited by birds, which resort hither in great numbers.

There are no dangers about the island, and a vessel may approach it in any direction, there being 33 fathoms water all-round. The depths between it and the Ghutdhrin islets vary from 20 to 30 fathoms, with 100 fathoms at 2 miles seaward.

Makdaha Anchorage.—Ras Makdaha is a dark, moderately elevated point, being the southern termination of a range of hills which extend 10 miles inland ; it forms the eastern limit of the bay of Makdaha, which is $3\frac{1}{2}$ miles across, with excellent anchorage and shelter from easterly winds. This bay is free from danger, excepting a sunken rock half a mile off-shore on the north-west side ; the soundings are regular, and the shore bold to approach.

The village of Makdaha is very small, and lies in the eastern angle of the bay ; it affords no supplies, and the water is indifferent. It is the residence of a chief, a tributary to the sultan of the Wáhidi tribe, who derives the principal part of his revenue from the guano from the islets. The inhabitants are wholly dependent on other ports for food.

Barráka island is a small, precipitous, and lofty limestone rock, with not a vestige of vegetation, lying off Ras Makdaha, between which is a safe channel one mile wide, with 15 fathoms water.

RAS-AL-KALB, or cape Dog, a low, round, sandy cape, lies 13 miles eastward of Ras Makdaha, the intervening coast being also low and sandy. Great caution should be observed on approaching it during the night, as, from being so low, it is not then easily discernible; but there is a depth of 14 fathoms at one mile from the shore, and 50 fathoms about 2 miles off; attention to the lead will give due warning.

The Coast.—From Ras-al-Kalb the coast turns abruptly in a north-east direction for 40 miles as far as Makalleh. The first part of it is wretchedly waste and sombre in aspect, and sand hills extend for some miles inland. The distant mountains in the interior appear equally sombre, yet relieved by a very irregular outline, assuming the forms of peaks, bluffs, &c., and rising almost precipitously to the height of from 2,000 to 4,000 feet above the sea.

RAS REHMAT, cape of Wind's Death, 8 miles north-eastward of Ras-al-Kalb, is elevated about 300 feet, composed of limestone, and of a dark peaked outline: on its south-western face, the sand from the plain has been swept up into a great heap by the south-west moonson. It takes its name "lull of the wind," a term frequently used by the Arabs when it falls calm, from the effects experienced by the dhows in running up the coast during the *tadh birch*, or early part of the south-west monsoon; the Arabs considering that when they round this point the violence of the wind has abated. From seaward this cape is remarkable, as being the commencement of the bold, dark, and precipitous land extending to within 15 miles of Makalleh.

The Wáhidi tribe consists of several thousand persons, and, it is said, can muster 2,000 matchlocks in case of war. They are a brave and hospitable race, civil and generous to strangers who treat them with familiar kindness, but cunning and revengeful when oppressed; they are much respected and feared by their neighbours; their inland towns are considerable, and well populated. Ras Rehmat is the eastern limit of the Wáhidi territory, which has a coast line of 60 miles in extent; its only two anchorages are Bal-haf and Husn Ghoráb.

Ras Assassa, or Asr-al-Hamra (red footsteps), is a rocky point, being the termination to seaward of a rugged range of hills, which extend some distance inland. This cape is 6 miles north-eastward of Ras Rehmat, and in the valley between lies the town of Al-Ghaidhar, situated in luxuriant groves of date trees, at about 4 miles from the shore.

The soundings off this part of the coast are deep, there being 60 fathoms water at a distance of $1\frac{1}{2}$ miles from the shore.

RAS BURUM is a bold, dark, craggy point, 8 miles north-eastward of Ras Assassa, composed chiefly of limestone, the highest point of which is visible at a distance of 38 miles : a reef, which is steep-to, extends a quarter of a mile to the eastward.

Between this point and Ras-al-Himár, or the Red cape, the coast forms the small bay, Ghubbet Kulún, in which the anchorage is indifferent; and again between Ras-al-Himár and Ras Assassa is another small bay, in the bight of which is a hamlet, inhabited by people of the Buheishi tribe.

BANDER BURUM, the bay to the northward of Ras Burum, formed by the bluff point of Radham and the low point of Burum, is a secure anchorage during the south-west monsoon, but open to East and N.E. winds.* Landing is at times difficult on account of the surf and rocks on the beach.

The town of Burum lies at the north-west angle of the bay; it is surrounded by date trees, and situated immediately at the foot of an offset of the range of hills, about 1,100 feet high, which here extends down to the sea, and forms a bold and rocky coast. This wretchedly built town, as well as Fuwah, Al-Ghaidhar, &c. is under the chief of the Buheishi tribe, who has also several smaller tribes tributary to him. Ijilli, a white mosque erected on an eminence a short distance from the beach, may be plainly seen from the offing.* The population is about 500 persons.

The territory of the Buheishi tribe extends along the coast from Ras Rehmat, to Fuwah in the bay of Makalleh, a distance of 25 miles, with a vast district inland. The tribe is called collectively, Buheishi, and under one sultan, and is subdivided into four lesser tribes, each having its own name and chief.

The valleys inland are rich and beautiful, producing quantities of jowári; they are bounded by the purple-veined mountains which rise from 5,000 to 6,000 feet above them, whose summits in the cold season are at times covered with snow.

Rain falls in November, December, July, and August, and sometimes severe showers in April and May.

* See plan of Bander Burum, on sheet of plans of anchorages on the coast of Arabia, No. 10.

Supplies.—Good water is to be obtained at Burum town, also firewood, sheep, fowls, eggs, onions, and pumpkins. Tobacco and dates are the chief produce, and a brisk trade is done during the south-west monsoon, when Burum becomes a port of refuge.

Anchorage.—The best anchorage in the south-west monsoon period, is in 5 to 7 fathoms, good holding ground, with the town of Burum bearing N.W., but a ground swell rolls in. H.M.S. *Seagull* was at anchor here, from January to March (north-east monsoon), in 7 fathoms, close-in, with south side of town bearing W. by N and north point of bay N. $\frac{3}{4}$ E.; the wind never blew sufficiently strong to make the anchorage at all dangerous, though at times the vessel rolled considerably. The current set continually north-eastward, just outside the bay.*

The Coast from Radham bluff to Makalleh, a distance of 15 miles, is low and sandy, with high mountains in the background. Along this part of the coast the depths are regular, the 20-fathoms being about one mile distant. As Makalleh is approached the beach becomes steeper.

Fuwah is a small town situated about half-way between Burum and Makalleh, containing about 500 inhabitants.

MAKALLEH BAY may be said to extend from Ras Burum to Ras Makalleh, but the name is more properly restricted to the eastern portion of the bight between Fuwah and Ras Makalleh, in which are two small bays, close to the north-westward of the point, known as the eastern and western. Of these two bays, the western is the most frequented by boats; it is merely a small nook, with from one to 3 fathoms water, protected on the west by a reef nearly dry at low water, which projects not quite half a mile from the shore: there is a sunken rock a short distance off the reef, with $1\frac{1}{2}$ fathoms water, requiring caution when standing towards it.

The eastern bay is seldom used, owing to the swell which rolls in during the north-east monsoon.†

The weather in the bay is exceedingly warm during the middle of the day, and on shore the heat is excessive. Land and sea breezes, with showers of rain, are, however, occasionally experienced in the months of October, to April, and often in June and July, which tend to cool the atmosphere.

* Nav. Lieut. R. J. Rogers, H.M.S. *Seagull*, 1881.

† See plan of Makalleh bay, scale, $m = 2$ inches, on sheet of plans of anchorages on the coast of Arabia, No. 10.

Ras Makalleh is a low neck of land projecting about 2 miles from the base of the hills, which here extend from the interior close down to the shore. Three-quarters of a mile westward of the point is Ras Marbat, with a ruined fort; and $1\frac{1}{2}$ miles further north-westward lies the town of Makalleh.

Rocky Bank.—Southward of Ras Makalleh, distant from 4 to 6 cables, is a rocky bank 3 cables in length, rather steep-to, and with depth of $3\frac{3}{4}$ to $4\frac{1}{2}$ fathoms. The passage, in shore of it, is said to be clear of danger.

The sea along the whole of this coast is remarkable for its clearness, the bottom being plainly visible, when calm and water smooth, in from 12 to 15 fathoms.

Anchorage.—The bank of soundings in Makalleh bay, on which anchorage may be obtained, extends about half a mile from the shore, near the town, increasing to nearly one mile off Fuwah. A vessel may lie here in perfect security during the north-east monsoon; a good position is in 7 to 10 fathoms water, sandy bottom, with the flagstaff on the governor's house, bearing from N.N.E. to N.E., distant about 2 cables from the point, and also from the reefs to the westward of the boat harbour. The south-west monsoon blows home fresh, but as the sun declines the wind and swell decrease; often during the morning at this period it blows strong from N.W.

Landing.—A stone jetty, built opposite the house of the Governor, renders landing much more easy than formerly.*

Tides.—It is high water, full and change, at 8h. 30m.; springs rise 7 feet; flood sets south-westward.

Makalleh, the principal commercial town on the south coast of Arabia, is partially built on a narrow projecting rocky point, and partly at the foot of a range of reddish limestone cliffs, rising about 300 feet immediately at the back of the town, and on which are six towers for the protection of the place. It has a picturesque appearance from the sea. Almost directly above this remarkable level range of cliffs, the flat-topped summit of Jebel Garrah—the base of which is limestone, and the upper half of beautiful white marble, traversed by blue and grey veins—rises 1,300 feet above the sea, and may be seen in clear weather at the distance of 42 miles. The northern portion of the town is built on ground sloping from the base of the hills to the bay, and enclosed on the west side by a wall extending to the shore, with only one entrance gate. The governor's

* Lieutenant H. J. Keane, *H.M.S. Kingfisher*, 1886.

house is a large square building, the others are chiefly huts, intermingled with stone houses and two mosques. The house on the point are of stone, and a better description of building.

Although the immediate vicinity of Makalleh is particularly barren, yet this is not the case a short distance inland. At about one mile up the valley westward of the town there are extensive date groves and gardens belonging to the governor of Makallah, who has built watch-towers there, occupied by his soldiery, to protect them from the incursions of the bedouins. The garden is irrigated by a stream of water, which is found to be derived from a rivulet that has its source in a rocky ravine of the mountains close by. The place where this spring is situated is called Bokharen, and the stream which flows from it is surrounded by date trees. The inhabitants of Makalleh obtain their daily supply of water from it.

Makalleh is ruled by a nakib, or governor, one of the Hamúm tribe, who derives his revenue from customs duties levied on imports, and harbour dues. The population is a mixed one, consisting of people of almost every nation.

Supplies.—Good water is to be obtained from the spring before-mentioned, but it is cheaper at Bander Burum. Firewood, bullocks, sheep, fowls, eggs, honey, and some descriptions of vegetables, are to be had in abundance, and moderate in price. A quantity of fish may be taken with the seine, in the western bay.

Trade.—There is a very considerable trade at Makalleh, which is carried on with India, the Red sea, and Maskat. The exports consist of gums, hides, large quantities of senna, and a small quantity of coffee. The imports are chiefly cotton cloths, lead, iron, crockery and rice, from Bombay; dates and dried fruits from Maskat; jowari and bajiri from Aden; coffee from Mokha; sheep, aloes, frankincense, coffee, and dye, from Berbereh, and other African ports. There is a considerable coasting trade carried on with the different vessels passing to and from the Persian gulf, and Red sea, which remain here, according to the custom of Arab sailors, a few days to rest, after being a short time at sea. The greatest number arrive during the date season, sometimes as many as 20 or 30 a day, of from 100 to 300 tons burthen, some with goods, others with pilgrims. Traffic in slaves exists. During the south-west monsoon a considerable portion of the trade is carried to Bander Burum, which then is a more secure anchorage.

CHAPTER V.

MAKALLEH TO RAS SHARBITAT.

VARIATION in 1887.

Ras Farták $1^{\circ} 30'$ W. | Khorya Morya islands $1^{\circ} 0'$ W.

The **COAST** from Ras Makalleh extends for 40 miles eastward in an almost unbroken line of low sand, as far as the cliffs of Hami. The soundings are regular, but deep; the 20-fathoms line being generally one mile off shore, and the 100-fathoms line about 3 miles, with a bottom of sand and shells.*

BANDER RUWEINI is a small bay close north-eastward of Ras Makalleh, having from 4 to 6 fathoms close in-shore, from whence it shelves into deep water. Native trading vessels find shelter here during the south-west monsoon.

Rukub (Raghib) village, 2 miles eastward of the bay, has a large ancient mosque. The inhabitants appear to be chiefly occupied in fishing.

Búweish (Bú Heish), a village about 3 miles north-eastward from Rukub, and $1\frac{1}{2}$ miles from the coast, in a well-watered valley, is surrounded by date groves.

Shuhair (Shehr), once a thriving town, is situated near the coast, 13 miles eastward from Rukub. There is an old fort near the village, which is the most conspicuous object, and the first perceptible on nearing the spot. This was formerly the residence of the chief of the Kasaidi subdivision of the Hamúm tribe.

Suku-al-Basir is a town lying inland about 4 miles northward of Shuhair, and said to contain 4,500 inhabitants. Its mosques may be distinctly seen from the sea. Tobacco, dates, and vegetables, with good water, are to be obtained here.

JEBEL DHEBAH, an isolated oblong table-topped hill, close to the shore, is a good land-mark for making Makalleh from the eastward, from which it is distant 20 miles.

* See Admiralty chart, gulf of Aden, general, No. 1,012; and western portion, No. 6 b; scale, $m = 0.10$ of an inch.

Zakfah is a village on the shore, 4 miles eastward of Jebel Dhebah, and 2 miles beyond is the ruined village of Mayariyan, where there is an abundant supply of water.

ASH-SHÉHR (Shahah or Shehr), 8 miles eastward of Jebel Dhebah, the chief town of the district of this name, extends one mile along the shore, having a fortified castle, the residence of the jemadar, on an eminence, which is visible from seaward before any object in the town. Here is a mosque and a custom house. The town is built in the shape of a triangle, with high walls round it, the dwellings being much scattered. Population about 6,000.*

Supplies.—Water is bad. Sheep and vegetables may always be obtained.

Trade.—Shéhr in 1880 had not much trade, except in dried fish. The jemadar and merchants have several vessels belonging to them, but the chief trade is carried on with vessels passing along the coast on speculation.

The manufactures of the town are not extensive, consisting principally of coarse cotton cloths and gunpowder.

Anchorage.—The anchorage off Ash-shéhr is an open roadstead. The best position is in 7 or 8 fathoms sand and shells, three-quarters to one mile from the shore.

Jebel Yucalif is an isolated hill, 4 miles north-eastward of Ash-shéhr, on which are the remains of a wall and terrace. It forms a good land-mark for making the place.

Eastward of Ash-shéhr the soundings continue regular, and the coast safe to approach, the 10-fathoms line being about one mile from the shore, and the 100-fathoms line from 3 to 5 miles.

HAMI, the next village, is 13 miles eastward of Ash-shéhr, lying just below the dark double hill of the same name, in a ravine, with a date grove and cultivated ground. There is a very little trade. Hot springs are numerous in the vicinity of the village; temperature, 140° Fahrenheit.

Anchorage about one mile off shore may be had, in 7 or 8 fathoms, sand, shells, and broken coral.

Supplies.—Water here is indifferent, and supplies difficult to obtain, sheep and vegetables being the only articles procurable.

* See plan of Ash-shéhr road, scale, $n=0.5$ inches, on sheet of plans of anchorages on the coast of Arabia, No. 10.

SHARMA BAY.*—Between Hami, and Ras Sharma 9 miles farther east, the coast forms a bay 2 miles deep, with sandy bottom, and regular depths. In the bight of the bay, on a rocky eminence, half a mile from the coast, stands the ruined fort of Husn-al-Museinaa; and between this point and Ras Sharma lies Sharma bay, considered the best in this neighbourhood during the north-east monsoon.

Ras Sharma is a small headland forming the eastern limit of the bay. At one third of a mile west of it lies Jezirat Sharma, a small rock 70 feet high. The channel between is 340 yards wide, having 5 and 6 fathoms water, deepening towards the rock, under the lee of which, it is said, vessels have anchored during the south-west monsoon, in safety. Immediately north of the cape is a hill named Mashhar-Sabbir, 170 feet above the sea.

Anchorage.—Very good anchorage may be found in Sharma bay, in 4 or 5 fathoms, with Ras Sharma bearing S.S.E., distant half a mile; but that most frequented is off the village of Al-Karn (Al Ghurn), near the head of the bay, where small vessels may lie perfectly secure in from 2 to 4 fathoms water.

Tides.—It is high water, full and change, in Sharma bay, at 9h.; springs rise, 8 feet; flood setting to westward.

Dis, a walled town, lies 2 miles inland from Sharma bay; 4 miles further inland is the village of Thubba (Dthabba). Both of these places are noted for their hot springs, of peculiar efficacy in rheumatic complaints.

The COAST from Ras Sharmat trends eastward for 8 miles, presenting a succession of limestone and chalk cliffs, rising almost perpendicularly 300 and 400 feet above the sea. and visible from a distance of 25 miles.

This part of the coast is bold to approach, there being 5 and 6 fathoms water in some places within a few yards of the cliffs; the bank of soundings extends $5\frac{1}{2}$ miles from the shore, and the 20-fathoms line is 2 miles distant.

Ras Baghashwa, a rocky point, 300 feet high, is the eastern termination of this coast, on which are the ruins of an ancient town; they are close to the cliff, and cannot fail to strike the eye of a person sailing along the coast: a small village of the same name lies a little to the eastward; at 4 miles to the westward, in a gap in the cliffs

* See plan of Sharma, scale, $m=1$ inch, on sheet of plans of anchorages on the coast of Arabia, No. 10.

fronted by a sandy beach, is Dhafghán village, off which is an anchorage for boats. To the northward, distant about 5 miles, is Jebel Hamún (sand hill), in the vicinity of which are some curious ancient inscriptions, in the same character as those of Husn Ghoráb.* There are several springs of good water here, and the land is well cultivated.

Aspect.—A high range of mountains extends in the direction of the coast, at a distance from the sea of from 10 to 15 miles. Commencing to the eastward of Makalleh, they bear the name of Jebel Jambúsh, then Jebel bin-Shamayik, with a remarkable bluff towards its eastern end on a still more distant range. Then follows Jebel Asid (mount Lion), which stretches away to the north-eastward towards Ras Farták.

The COAST from Ras Baghashwa to Ras Kosair, a distance of 13 miles, trends east-north-eastward, and is low and sandy.

The soundings are regular ; the 20-fathoms line lying about 2 miles, and the 100-fathoms line about 6 miles distant from the coast, the nature of the bottom being sand and shells.

Hamúm Tribe.—The territory of the Hamúm tribe extends along the coast from Fuwah to Museinaa, a distance of 100 miles. The tribe is sub-divided into ten, each of which divisions has its own name, and separate chieftain ; but collectively they are called Hamúm, and are under the dominion of the sultan.

RAS KOSAIR is a low rocky point, with two rocky islets close westward of it. A reef, partly dry at low water, extends south eastward from these islets to a distance of 4 cables off Ras Kosair. Boats find shelter within this reef ; there is also shelter for boats at about three-quarters of a mile eastward of the point, behind a reef.

There is good anchoring ground off Ras Kosair reef, in 12 or 14 fathoms, but no shelter from the wind.†

One mile northward of the point is Kosair village, consisting of a few stone buildings, but chiefly huts. The inhabitants have some few boats, and catch abundance of sharks, the tails and fins of which, when dried, they export to Maskat and Bombay, whence they find their way to the Chinese markets, fetching good prices.

Half a mile north-west of the village is a ruined square fort and a date grove ; and $1\frac{1}{2}$ miles westward is the scattered hamlet of Korein.

* See "London Asiatic Journal" for 1838, p. 91.

† See plan of Ras Kosair, scale, $m = 2$ inches, on sheet of plans, No. 10

The COAST from Kosair trends east-north-eastward for a distance of 30 miles ; it is low, sandy, and uncultivated, presenting a dreary appearance. The soundings are irregular, the bottom being rocky, with sudden overfalls ; the lead, therefore, affords no guide.

The round tower at Harrah, a small village 4 miles north-eastward of Kosair, is conspicuous.

Serrar or Raida Seghir, is another small village, $2\frac{1}{2}$ miles farther on, with abundance of date trees near the houses.

Husn-al-Katheri is a ruined fort, 2 miles from the coast, and 3 miles west of Raida.

Raida, a small town about three-quarters of a mile inland, is the chief place on this part of the coast, being the residence of the chief, who rules over the Kasaidi subdivision of the Hamúm tribe ; his territory extends from Ras Baghashwa to Museinaa. There are several trading boats belonging to the place. The exports are frankincense, aloes, ambergris, and sharks' fins and tails. The population is about 700.

There are many hot springs here, which are said to possess great medicinal virtues ; and from the number of places and ruins, and the cultivation which accompanies the presence of water here, this, next to Dhofar, may be inferred to be the most favoured part of the coast.

The soundings off Raida are deep, there being 20 fathoms water within a quarter of a mile of the beach, affording no anchorage.

Opposite the town of Raida there is a deep hole with from 120 to 135 fathoms water, close to the shore, with from 20 to 40 fathoms round it.

Among the most remarkable features on this coast are a series of horizontal effusions of black basalt, on the plain between the neighbourhood of Raida and Wadi Masaila. These are three in number, and are called Harik or burnt place by the Arabs. Each is accompanied by one or more cones about 100 feet above the level of the surrounding ground ; and around each cone, for a variable extent, is a low field or tract of basalt, so strikingly defined by its blackness and the light colour of the plain over which it has spread, that, but for its being unattended by any active signs of volcanic eruption, it might be taken for a semi-fluid mass of lava.

In the centre of the first tract, which is in the vicinity of Raida, are four cones ; and this effusion having taken place over ground for

the most part 100 feet above the level of the sea, has found its way into the watercourses, and appears at their openings on the shore in black rocks, contrasting strongly with the white colour of the limestone on each side. The plains of the lower mountains here also appear to be darkened, perhaps by ashes which were ejected from the cones or craters. There is, of course, hardly any trace of vegetation, and the heat from it in the month of May is almost insupportable.

The next cone is opposite Wadi Sheikháur about 9 miles from the last, and about 3 miles inland.

The last cone is about 4 miles west of Sihút. Its effusion has extended nearly to Wadi Masaila on the east, and joins with that of the cone on the west.

Connected with these volcanic effusions appear to be Abd-al-Kúri or Palinurus shoal, and the deep hole off Raida.

Such irregularities in the bottom of the sea do not exist again throughout the whole of this coast.

Museinaa (Misena) is an old ruin on the coast, 12 miles eastward of Raida; the land about is swampy, and abounds in mangrove trees. The remains indicate the site of a large town.*

This is a most interesting portion of the coast, containing as it does so many ruins and ancient inscriptions, which bear record of former greatness. The country, which was probably fertile and populous, is now almost desolate, and the few inhabitants are nearly always at strife with their neighbours.

Wadi Sheikháur, a valley 10 miles inland, is easily distinguished by a remarkable gap in the mountains that encompass it: several inscriptions similar to those of Husn Ghoráb, &c. are to be found here.†

ABD-AL-KÚRI, or **Palinurus Shoal**, is a dangerous patch of rock and coral, one mile in length, lying off Museinaa; from the shoalest spot, $2\frac{3}{4}$ fathoms, the ruin at Museinaa bears N. $\frac{3}{4}$ W., distant about $8\frac{1}{2}$ miles, and nearly in a line with the eastern bluff of Sheikháur gap, which lies fairly open; the sandy beach on the mainland is not visible.

Caution.—It is advisable to avoid this spot entirely, either by keeping well in-shore, or by keeping a good offing of from 12 to 15 miles from the coast. The soundings round this shoal vary suddenly, and do not always decrease on approaching it.

* See Admiralty chart: south-east coast of Arabia, No. 10b; scale, $m = 0.10$ inches.

† See "London Asiatic Journal" for 1838, p. 93.

The COAST between Museinaa and Ras Ekab, a distance of about 40 miles, is low and dreary, with a gradual ascent to the Sheikháur mountains, the eastern termination of which forms the western side of Wadi Masaila.

At 12 miles eastward of Museinaa is the village of Tanún, (Samúm), and 9 miles further on is the deserted village of Sharkhut.

The depths are regular, and the shore safe to approach; the 20-fathoms line is about 5 miles, and the 100-fathoms line 15 miles distant from the shore.

Wadi Masaila is a valley 6 miles wide, having on its west side the high range of mountains of Jebel Asid, and on its east side the high range which terminates on the coast at Ras Ekab; it forms the line of communication between the sea-port towns and the province of Hadramaut. On each side of the entrance is the ruin of a fort. The valley is well watered by running streams, and villages and date groves are numerous; the inhabitants are of the Mahra tribe. Wadi Masaila is certainly the grandest of all the valleys of this coast which open upon the sea, and running inland seems to divide the mountainous land of Southern Arabia into separate tracts. Its width and the height of its sides appear enormous, and its summits are usually cloud-capped.

SIHÚT is a village 33 miles eastward of Museinaa, and south-east of Wadi Masaila; from the sea it has the appearance of a large town, but is in reality in a most dilapidated condition. The scattered stone buildings in the neighbourhood have evidently been erected as places of defence against small arms. Its population, of the Mahra tribe, varies from 300 or 400 to 2,000, according to the trade and season. Considerable intercourse with the interior is carried on through Wadi Masaila. Five miles to the westward of Sihút is the village of Darfút, with a date grove.

The traders of Sihút have several coasting craft belonging to them, with which they carry on a lucrative trade in grain; the smaller boats are also employed in shark fishing, from which they derive considerable profit.

Anchorage.—The anchorage off Sihút is an open roadstead; the soundings are regular, and depths of 7 to 9 fathoms extend some distance off shore, with a sandy bottom.

Ras Ekab (Akab) is a high, red, sloping, rockypoint; between this point and Ras Atáb, a distance of 8 miles, are three bluffs, nearly equidistant, forming small bays, with sandy beaches, some of which afford shelter for small boats in the north-east monsoon. A few fishermen live in different spots along the coast.

RAS ATÁB is moderately elevated, terminating in a low point, which forms the western boundary of Bander Liban.

Atáb.—At 2 miles north-eastward of Ras Atáb, and one mile from the beach, is situated the town of Atáb, having three mosques, the western one of which has a minaret. The population is about 400. The town is under the government of Kishin. At one mile westward of the town is a date grove, and to the eastward is a well of good water.

Bander Atáb or Liban, has regular depths, and at its eastern limit, under Ras Sharwein, affords shelter from north-easterly winds. With a fresh sea breeze, there is considerable surf on the beach. The shore of this bay is sandy, gradually ascending from the beach; in some parts the sand is blown high up against the face of the hills, one remarkable black peak showing itself through the sand.

Excepting a few trees on the summit and sides of the mountainous tract between Ras Sharwein and the neighbourhood of Raida and Ras Baghashwa, the whole coast is barren and uncultivated.

RAS SHARWEIN, separating Bander Atáb from Kishin bay, is a high, dark, perpendicular cliff; the highest peak, 750 feet above the sea, is about 2 miles from the point, gradually sloping towards the sea in the form of a gunner's quoin, and terminates in cliffs varying from 80 to 150 feet in height. Sand blown high up against the south face of Sharwein hills, attests the strength of the south-west monsoon. About half a mile west of the point are two remarkable sugar-loaf peaks close together, commonly known by the name of the Ass's Ears, which may be seen at a distance of 30 or 40 miles. The point is bold to approach, there being deep water close under the cliffs.

KISHIN BAY is formed by the projecting headlands of Ras Sharwein and Ras Darja, 13 miles apart. The depths are regular, there being 10 fathoms water nearly 2 miles from the shore, gradually decreasing towards the beach. During the north-east monsoon there

is a high surf on the beach, which renders landing dangerous, except immediately to the westward of Ras Darja, where there is a nook, in which the small trading boats land their goods.*

The shore of the bay is low and sandy near the sea, having a high range of hills in the background, with a barren track of undulating sand-hills intervening.

Anchorage.—The best anchorage is in Bander Lask, the western part of Kishin bay, in about $5\frac{1}{2}$ fathoms, one-third of a mile from the shore, with the second and third bluffs of the point shut in, where vessels will be completely sheltered from the south-west monsoon, and lie in smooth water. In the other parts of the bay a heavy swell rolls in at that period.

Kishin, a large straggling town, is situate in the depth of the bay, about half a mile from the beach; it is one of the principal ports of the Mahra tribe, and the residence of the sultan, who also is nominally the sultan of Sokótra.

The population is small, and they have only a few trading and fishing boats. A small trade is carried on with the Persian gulf, Zanzibar, and the western coast of India. To Zanzibar and Maskat they export salt and dried fish, to India they principally send money; and in return import from those places jowari, rice, cotton cloths, dates, coffee, and sugar.

The village of Sük, near which is a small khor or lake of salt water, and few date trees, lies $1\frac{1}{2}$ miles eastward of Kishin; and $1\frac{1}{2}$ miles farther on is another small village named Hafat.

Fish is plentiful off the coast, and of excellent quality; it forms the staple article of food with the natives.

Water.—Good water is procurable here from a well to the westward of the town.

RAS DARJA (Derkah), the eastern point of Kishin bay, is a precipitous point, varying from 200 to 400 feet in height. The sea is blown against it with great force during the south-west monsoon, forming large caves at its base, which is of limestone formation. The point is bold, having 5 fathoms water close to the cliffs.

The cliffs extend from the extremity of the point to the beach on either side.

A sunken rock lies $3\frac{3}{4}$ miles north-east of Ras Darja at three-quarters of a mile from the shore.

* See plan of Kishin bay, on chart No. 10b; scale, $m=1.2$ inches.

Anchorage.—Between the rock and Ras Darja there is complete shelter and good anchorage during the south-west monsoon.

The COAST from the cliffs of Ras Darja to those of Ras Farták, a distance of 20 miles nearly straight in an east-north-east direction, is low and sandy, sand-hills rising gradually towards the interior, and having a high range of hills in the background; the whole is barren, with the exception of a few stunted bushes, and small patches of cultivation near the villages.

The depths off this part of the coast are regular, the 10-fathoms line being about one mile from the shore; the 100-fathoms line is 20 miles off at Ras Darja, decreasing to 6 miles off Ras Farták.

Sakr is a straggling village, situated in a date grove close to the beach, 8 miles eastward of Ras Darja, with a population of from 500 to 600. On some low cliffs, south-west of it, stands a large white mosque. A considerable quantity of grain is cultivated in the vicinity. An abundant supply of good water is to be obtained here.

Haswein is a village about 9 miles eastward of Sakr, with some date trees near, containing about 500 inhabitants, who principally depend on fish for food; they also carry on a small trade in them along the coast. Good water is to be obtained here in abundance.

Kesid or Teif, is a fishing village, situated at the base of the high land on the western side of Ras Farták, consisting of about 150 persons. It has no trade, and the inhabitants are miserably poor.

Off this village, is the usual anchorage for boats trading with the Mahra tribe, inhabiting the small valley on the western side of the cape.

At a distance of $1\frac{1}{2}$ miles from the beach are some date groves, with the villages of Dhekrabait on the eastern side, and Kadifut on the western side of them, each containing about 300 inhabitants. There are several wells of good water, and the land is slightly cultivated; there are also two small salt-water lakes in the vicinity, from which the natives make considerable quantities of salt for exportation.

WADI, one of the most powerful towns belonging to the Mahra tribe, lies about three hours' journey from the landing-place at Kesid, following the valley at the western foot of the Farták mountains, having three or four forts for its protection. The population amounts to about 600 souls; they are wealthy for Arabs, but, in general with the whole of the Mahra tribe, bear a bad character, and are not trusted by the trading Arabs.

Wadi is a place of considerable trade, its port being Kesid, before mentioned; there are several coasting craft belonging to the inhabitants, on which they carry on a trade with Mangalore, Maskat, and Zanzibar, touching at other ports on their way. The principal exports are salt, salted fish, and shark fins. The imports are rice and cotton cloths from India; staves, tobacco, and wood for building boats and rafters from Zanzibar and the African coast; and dates from Maskat.

It was, formerly, the largest slave-dealing town on the coast; great numbers of slaves being imported annually, and sold to their own and other tribes.

RAS FARTÁK is bold, and safe to approach, there being 9 and 10 fathoms water close to the cliffs, 20 and 30 fathoms at a distance of a mile, and 100 fathoms about 5 miles from the shore. It is a lofty mountainous headland about 2,500 feet above the sea, and visible at a distance of 60 miles on a clear day, and next to Ras Sakar, the highest and largest promontory on the coast. The sea-cliff, which at Khalfút is about 50 feet above the sea level, increases rapidly in height with the land, and soon arrives at a perpendicular escarpment of 1,900 feet, which it maintains on to the summit of Ras Farták. It is by far the grandest escarpment on the south-east coast of Arabia, being uninterruptedly perpendicular from top to bottom, for an extent of six miles.

No part but the summit of this range presents any vegetation, and this is chiefly on the western side, where the range gradually slopes to the plain below. Indeed the barrenness of the Farták range generally, as well as that of the land side, seems to indicate that this part of the coast does not catch any of the rain of the south-west monsoon.

From the extremity of the cape the cliffs extend in a northerly direction for a distance of 8 miles, then become lower and irregular for a farther distance of 9 miles, when it meets the sandy beach off the village of Tabút, the rocky projections forming several small bays with deep water.

When about 30 miles off the cape in a south direction, it appears like an island with a gap in the middle. It is supposed to be the ancient Syagros, from its resemblance to a boar's head when seen at a distance of from 20 to 30 miles from the west or east.

GHUBBET KAMAR.—The coast at Ras Farták takes a sudden turn northward for a distance of 40 miles, when it curves away to Ras Sakar, forming between the two capes, the extensive bay

of Ghubbet Kamar. From the high land, of Farták, the shore is low near the beach, with high land in the interior for 40 miles, until near the village of Al Jowhari, in the vicinity of the Falik mountains, having to the eastward the high mountainous range of Jebel Kamar,—which varies in elevation from 3,000 to 4,000 feet, and comes close down to the sea.

The soundings in this bay are deep and irregular. Off the low sandy coast at the western end the 10-fathoms line is about $3\frac{1}{2}$ miles from the shore, deepening into 100 fathoms at 13 miles distance; but as the high land of Al-Kamar is approached, and thence to Ras Sakar, the water becomes very deep and the coast dangerously bold, in some parts there being no soundings at 100 fathoms within a mile of the shore, consequently there is no safe anchorage for vessels, neither is there any place of shelter along the whole extent of the coast.

Ras Fintás, the first headland to the northward of Ras Farták, and distant 9 miles, is a bluff about 200 feet high, having immediately over it a conical hill, named Fintás peak. At this point the high land leaves the coast and trends far away north-westward. At 2 miles northward of Ras Fintás there is a low bluff point forming the northern boundry of a small sandy bay, in which is situated the village of Nishtun.

Northward of Nishtun the coast forms a bay, in which is situated Khor Khalfút, a creek about 400 yards in length, having 6 feet water. Boats of 30 and 40 tons are hauled up here during the south-west monsoon. There are a few temporary huts occupied by the crews of the boats during the period of their being laid up.

From Khor Khalfút the coast trends northward 20 miles to Al-Ghaidtha (Gheither), the largest town in the bay, and situated about two miles from the beach. The small villages of Tabút, Herút, and Heraiyak are situated on this part of the coast about a mile from the beach. Between the first two named villages, and 3 miles from the beach, is a small saddle hill.

From Al-Ghaidtha, the coast trends north-eastward for a distance of 17 miles to Al-Jowhari, a white tomb situated 3 miles from the beach, with a few huts near it. The intermediate coast is also low, and about midway is the village of Eirúb. Southward of Eirúb, distant 3 miles, are some date trees and Kabr Khaihul tomb, close to the sea.

Between Khalfút and Eirúb, the 10-fathoms line is about 3 miles distant, the depths rapidly increase to 20 fathoms, and thence off into

deep water. In this part of the bay very weak tides prevail, but they are accompanied by strong ripplings, which are rather alarming to persons unacquainted with their existence.

The premonitory swell of the south-west monsoon commences to roll into the bay early in the month of April, causing a very heavy surf on the beach. As a general rule, the winds are light and variable in the bay.

The Falik range of mountains come close down to the sea, 9 miles east of Al Jowhari, and trend in a west-north-westerly direction until they join the Farták range. The average elevation is about 2,000 feet above the sea. From hence the coast continues in a straight line to Ras Sakar, the mountains rising abruptly from the sea, with occasional small patches of sandy beach.

Wadi Shaghut is formed by the Falik and Athub ranges of mountains, the former terminating in a sand hill, and the latter in a dark buff point. Off this place the bank of soundings extends 7 miles, with overfalls near the edge. There is a depth of 10 fathoms within half a mile of the shore.

Damkut, the only sea-port in Ghubbet Kamar, is a town situated in a valley at the western extremity of Jebel Kamar, on an irregular plain about a mile square, and bounded on all sides, except the sea, by almost inaccessible mountains. A reef of rocks on which the sea breaks extends 250 yards from the shore ; on the eastern side of this reef there is good landing when the south-westerly swell is not very heavy, when the western side is almost unapproachable at such times. On the western side of the plain is a salt-water khor, with a few date trees round it, and on a cliff immediately over the town stands a ruinous fort. The town consists of about 90 mud houses, with a population of about 400 people. They have a small export trade in ghi, hides, and gums ; and about 40 small boats rudely sewn together, in which they are chiefly employed shark fishing during the fair season.

This is the eastern limit of the coast line of the Mahra tribe ; between it and Ras Tarbat Ali 13 miles eastward, the ground is said to be neutral and inhabited both by Mahra and Garra. There is a very extensive burial-ground here.

From Damkut eastward, the bank of soundings becomes very narrow and steep, there being no soundings in some places at the distance at $1\frac{1}{2}$ miles from the shore, and from 7 to 10 fathoms close-to.

Jodab, a village built under some projecting rocks, is distant 9 miles eastward of Damkut. Three miles farther on is Hauf, a village and tower, the residence of a sheikh. Ras Tarbat Ali is a small rocky point, about 200 feet above the level of the sea, having over it a bluff on the high range, nearly 4,000 feet high, which is very conspicuous from the south-westward : from the south-eastward it is not distinguishable. Thalfut is a grove of date trees, distant $8\frac{1}{2}$ miles eastward of Tarbat Ali. There are large numbers of cattle in this locality. Kharfut, a very fertile valley, is $5\frac{1}{2}$ miles eastward of Thalfut.

Rakhuit is a small village 10 miles westward of Ras Sakar, situated in Khaisat-bin-Umar valley, which produces abundance of limes and tamarinds. A petty sheikh resides here. Khaisat-bin-Othman is a similar valley, and situated 4 miles to the eastward, with a small village named Safut.

From Khaisat-bin-Othman to Ras Sakar the mountains rise like a wall from the sea, and the soundings do not extend more than one mile from the shore, falling off suddenly from 35 fathoms to no bottom at 120 fathoms. The whole range of mountains from Damkut is comprised under the general appellation of Jebel Kamar, and although sterile in appearance at a distance, are clothed with wood from the base to the summit. The country from Ras Farták to Thalfut is inhabited by the Mahra Tribe, the chief of which resides at Kishin. The remaining portion towards Ras Sakar by the Beni Garra, who own no supreme authority.

The Al-Mahra tribe is very numerous and powerful, its territory extends along the coast from Museinaa to Damkut. They are an extremely bold and hardy race, in character crafty and treacherous, and are not trusted by the trading Arabs : their enmity towards the English is very great, and they take every opportunity of evincing it.* Collectively, they are under the rule of a sultan, but are subdivided into four branches under distinct chieftains, which are again subdivided into classes, each class having its sheikh.

Supplies.—Bullocks and sheep are generally plentiful at all the villages in Ghubbet Kamar. Vegetables are not procurable, nor are any signs of cultivation anywhere to be seen.

Weather.—The south-west monsoon from about the middle of June, blows strong with a heavy sea. During this season most of the people retire to the mountains. Rain is uncertain, sometimes falling in abundance, and often the season passes over without any.

* Information obtained in the years 1833-35.

The current which begins to set E.N.E., early in April, along the south-east coast of Arabia, is apparently turned off at Ras Farták, and strikes the coast again at Damkut; its average strength is 2 miles per hour. During the north-east monsoon it runs in the opposite direction at the rate of one mile per hour.

RAS SAKAR (Seger) is a high, steep, and rounded cape, rising in three steps from the sea, the highest of which is a perpendicular bluff, elevated 2,770 feet; the summit of the cape is an even table-land, at 3,380 feet above the sea. The eastern side of Ras Sakar is perpendicularly scarped, but is not so high as the south-western, on account of the strata dipping towards the east. The south-western side is not perpendicularly scarped, but descends in three or four grand steps to the sea, the ledges of which are so narrow that the summit may be seen when only distant from the base half a mile. The bluff extremity of the cape is perpendicular to the water's edge.

The cape is steep-to, there being no sounding at 100 fathoms within one mile of it.

The COAST.—From Ras Sakar to Ras-al-Himar, a distance of 24 miles, the coast is rocky and irregular, forming a slight curve named Ghubbet Fazaiya, in which the soundings are still deep, but extend to a greater distance from the shore, there being 100 fathoms water at 9 miles off: close in-shore the depths are 10 to 11 fathoms. At the western end of the bay is a rocky islet, near the shore, with deep water all round.

Ras-al-Himar, or Red cape, is a rocky bluff point, formed by red irregular hills, projecting from the high mountain range which skirts the coast.* On the summit of the bluff is a remarkable needle peak, forming a notch with a smaller peak.

RAS REISÚT is a bluff rocky point, about 100 feet above the sea, 4 miles north-eastward of Ras-al-Himar. On its extremity are the remains of a small round tower, and farther in, on the ridge, is an ancient burial ground extending over an area of three acres. Close eastward of the point are three rocky islets. Ras Reisút forms the western boundary of the low land of Dhofar, and the southern point of Bander Reisút, and is composed of the white and gray limestone of the coast, and much scarped and irregular near its summit from denudation.

* Point of same name at page 102.

Bander Reisút, a small bay immediately northward of Ras Reisút, affords excellent shelter during south-west or westerly winds, with good anchorage in from 4 to 5 fathoms water. A white rock lies close to the shore, nearly one mile northward of the cape.*

Water.—There is a well of indifferent water half a mile from the beach.

The COAST from Bander Reisút takes an easterly direction for 37 miles to Merbat bay. It is low and sandy until within 16 miles of Merbat, when cliffs of 100 feet elevation again prevail. Off the low portion of the coast, the depths are regular, and extend 13 miles off-shore, there being 100 fathoms water at that distance, and good anchorage in from 5 to 7 fathoms three quarters of a mile off. The coast is backed by Jebel Kamar and Jebel Samhan, a range of mountains, of from 3,000 to 4,000 feet elevation, which skirt the coast, and terminate at Ras Nus.

The appearance of the coast from Reisút to Diriz is pleasing to the eye, presenting a succession of green fields, cocoa-nut groves, and buildings, with the high range of mountains in the background. Eastward of Diriz all traces of cultivation are lost, the ground being swampy and covered with mangrove, for a distance of 12 miles, until the village of Thakah is reached.

The coast between Thakah and Merbat presents a succession of limestone cliffs, of about 100 feet in height; the high range of mountains of Jebel Samhan, sloping down to within one mile of their edge. The coast is bold to approach, there being 10 fathoms of water within half a mile of the cliffs.

The habitations of men here are for the most part in the rock. They dwell in natural caverns, some of which are of enormous dimensions; and as these are for the most part situated on the precipitous portions towards the sea, their position may sometimes be distinguished by their lights when night comes on.

DHO FAR PLAIN.—The extensive plain of Dhofar is bounded on the west by the high land of Ras-al-Himar, and on the east by Jebel Samhan near the village of Thakah: it is the most extensive of the low land tracks that intervene between the sea and the mountains, which here recede to a distance of 15 miles. It possesses a rich arable soil, and an abundant supply of fresh water.

* See plan of Bander Reisút, on chart No. 10b; scale $m = 6$ inches.

For the protection of the cultivated parts, towers have been erected, from which watchmen discharge their matchlocks on the approach of suspicious characters. But this is of little use, for the inhabitants of the mountains, who are the principal depredators in this case, linger about during the day at a distance with their flocks or herds, and when the night comes turn them into the young corn, and eat the whole down in spite of everything. Hence it follows that the greater part of this fertile and well-watered plain remains uncultivated, and most of the inhabitants reduced to the greatest want, from the almost inevitable issue of their labours. Men may be seen going to till the ground with their sword in one hand and their hoe in the other.

The towns of Dhofar are congregated about its centre, near the sea, probably for mutual protection. They are five in number, viz., Diriz, Salála, Al-Hafa, Al-Robat, and Okkad. The former three are situated around the ruins of an ancient city, now called Al-Bilad, on the sea-shore. Al-Robat is a little distance inland towards the mountains, and has been deserted on account of the continued predatory visits of the Garra tribe. Okkad is on the coast a few miles west of Salála.

The inhabitants of the plain of Dhofar are partly Garra and partly Al-Katheri, and so deeply involved in blood-feuds that there are hardly two people among them who are not afraid to pass each other. Scarcely an inhabitant of one town dares go to another without a protector, called a rubiya, who is bound to take upon himself the insults offered to the man whom he protects. But these seldom amount to anything serious, for the rubiya being friends with all, few will open a blood-feud with him for the sake of being revenged on the man he protects; hence the latter is able to transact his business and return to his home with perfect security.

The inhabitants of this district, therefore, live in a most frightful state of anarchy. They are in constant fear of each other, and in terror of a descent of the Garra from the mountains. Indeed their condition is as unhappy as can well be conceived, and this they bear in their countenances. Not only the people of the plains but the principal people of the mountains are extremely anxious for the protection of a good government. The former hailed the arrival of the surveying vessels there with delight, hoping it was the object of the English Government to take possession of the country.

During the south-west monsoon, the wind, waves, and sand are said to render Dhofar so disagreeable that the principal inhabitants retreat to the mountains. The plain, after the rains, is said to be covered with an incredible number of sheep and cattle. Horses they have none, or not more than half-a-dozen miserable creatures.

In several parts of the plain there are ruined towns like that of Al-Bilad. They amount to six in number, and are said to have been built by the Min Gui, of whom see the description of Al-Bilad hereafter alluded to.

The frankincense and gum-arabic trees abound on the mountain slopes in the interior, as well as many other medicinal gums, which might be collected in large quantities; but the trade is small, owing to the want of some safe place of exchange or sale, as well as the want of protection.

Inhabitants.—The Garra bedouins, who are the rulers of the country, inhabit the mountains, which they prefer to the hotter Tehama, or plain, and wander from spot to spot, as pasture serves for their cattle and flocks. They employ themselves during the south-west monsoon collecting gums, which they barter to the people of the plain, whom they visit for that purpose immediately before the feast of the Ramazan, and which are again bartered to the trading boats which visit the coast. They seldom eat meat, as they value the milk of either camel, cow, or goat too highly to kill the females: the males of the two latter they frequently dispose of on the coast for rice, dates, &c.

They are a fine, athletic race of men, and expert with their arms, which are the matchlock, yambe, and short straight sword; some are armed with a piece of very hard wood, which they throw with great precision as far as 100 feet, at which distance they could kill a man. This weapon is thrown so as to rebound along the ground.

Caution.—The Garra bedouins have a great hatred towards Europeans, and extreme caution is necessary in all dealings with them.

Okkad is a small village 4 miles northward of Ras Reisút, and about half a mile from the beach, containing about 120 inhabitants, round which is a little cultivated ground, and some cocoa-nut trees; near it is a salt-water lagoon. There are several wells of good water in the village.

Abkad, another small village, lies one mile to the eastward of Okkad, and half a mile from the beach, with about 80 inhabitants, who possess some fishing boats. There is a fresh-water lake in the vicinity.

Salála, a town containing about 600 inhabitants, lies nearly 3 miles from Abkad, and $1\frac{1}{4}$ miles from the beach, surrounded by groves of cocoa-nut trees and cultivated ground, giving the coast a fresh green appearance from seaward. There is a lake and several wells of good water here.

Al-Háfa, a town nearly one mile south-eastward of Salála, and close to the beach, containing about 600 inhabitants, who possess a few fishing boats, is situated in groves of cocoa-nut trees, and well cultivated ground, and has several wells of good water.

Al-Bilad.—At one mile east of Al-Háfa, separated by richly cultivated ground, are the extensive ruins of Al-Bilad, close to the beach, spread over an area of 2 miles in length, by 600 yards in breadth :* near, to the eastward is a deep khor of fresh water, thickly covered with bulrushes. The situation may be known by the high mound formed by the ruins at the east end of the large grove of cocoa-nut trees.

Water.—There is good water to be obtained here, and at all the villages on the coast of Dhofar : it is dangerous for crews of vessels to fill up their casks themselves, and in their own boats, owing to the surf which rolls in on the beach ; the natives will bring out the water in their fishing boats. A constant supply of small casks should be sent to the shore, as the natives are lazy, and not easily induced to recommence work after once leaving off.

Robat is a deserted town close on the northern edge of the khor ; the houses (1834) are still in tolerable repair, with a mosque, the wall of which is built of stone ; on the pulpit is an inscription with the date of its erection Ann. Hej. 1232 ; built by Abdul-Sheikh bin Taujah.

Diriz, a small town, $4\frac{1}{4}$ miles eastward of Al-Háfa, close to the beach, is, like that village, situated in cultivated ground and groves of cocoa-nut trees. Round the town are several watch towers within shot of each other, for its protection. There is a khor of salt water immediately to the eastward, and 2 miles beyond are the ruins of a fort.

Thaka is a small village built of mud and stones, with a population of about 350 souls, situated close to the coast, which is here

* See account of the ruins of Al Bilad, by Dr. Carter, Royal Geographical Society's Journal, vol. xvi. 187.

formed of limestone cliffs 100 feet in height, and at the foot of the mountains, which slope down to within one mile of the coast. Westward of the village are groves of cocoa-nut trees and some cultivated ground. There are two fresh water khors, and one (Khor Reiri) salt; the latter is probably fresh at its upper part, but near the coast it is very brackish, and there is a perceptible rise and fall; it is separated from the sea by a narrow ridge of sand, and it is said that formerly boats could enter it.

Supplies.—Good water and bullocks are to be obtained here.

MERBAT BAY lies to the north-westward of Ras Merbat, and affords good anchorage in from 7 to 9 fathoms, with Ras Merbat bearing South, distant about 8 cables, and complete shelter from 24 points of the compass, being only open from south to west. Jebel Doa-an, bearing N. by E. or eastward of that bearing, is a good mark for identifying Merbat. The eastern shore of the bay is an extensive sandy plain, on which appear a few hills of moderate elevation.*

Ras Merbat, a low rocky point, is the south-west extreme of the low belt of land which extends from the Samhan mountains to the sea. A reef extends 400 yards, from the point, with from 8 to 10 fathoms water close to its edge, and 20 fathoms at 2 cables distant.

Merbat town is situated about the centre of the bay, close to the beach, and about one mile northward of the cape: it consists of 30 or 40 mud and stone houses, with a population of about 200 souls, who are friendly inclined. Northward of the town is a tomb. Around the houses are ruins of others of a more ancient date, from which the newer ones appear to have been constructed. This is commonly the case with the villages on this coast.

Merbat is the principal trading town of the province of Dhofar: the exports are frankincense and gum-arabic, which is collected here from the bedouins, and varies very much in quantity. The trade is mostly carried on by barter, they receiving rice, dates, cotton, cloths, &c., in exchange for their gums. The sheikh levies a duty on all exports and imports.

* See plan of Merbat bay, on chart No. 10 b; scale $m = 3$ inches.

Jebel Doa-an, or Merbat peak, 3,960 feet above the sea, is the western brow of the high range of limestone mountains, Jebel Samhan, which, as before mentioned, skirt the coast between Ghubbet-Kamar and Ras Nus. It is the best land mark for making Merbat: the peak is nothing more than an elevated part of the mountains, from which they rapidly decline in height to the westward, thus rendering it a conspicuous object from the sea.

Supplies.—Very indifferent brackish water, firewood, and a few bullocks and goats may be obtained here. Merbat is a common place for vessels sailing along this coast to water at, although the water is so brackish that it is hardly drinkable, at least to those who have been accustomed to better; but about 4 miles west of it there is a mountain rivulet of excellent water, which, descending to within a few hundred yards of the shore, enables vessels to replenish their tanks there.

Tides.—It is high water, full and change, at Merbat, at 9h.; springs rise 6 feet 10 inches.

The COAST.—From Ras Merbat to Jebel Jenjeli the coast is low, rocky, and irregular, forming several small sandy bays, with rocky points, and isolated rocks close to them. The soundings are very deep, there being 30 and 40 fathoms water about 200 yards off the shore, and 100 fathoms within a quarter of a mile.*

Bander Jenjeli (Kinkeri) is a sandy bay immediately under the high conical hill bearing that name. It is $2\frac{1}{4}$ miles broad at the entrance, and $1\frac{1}{4}$ miles deep, affording shelter from easterly and north-easterly winds, but open to the southward. This bay has irregular soundings, varying from 8 to 12 and 16 fathoms, with overfalls; the bottom is rock and sand. In the centre, on a line drawn from point to point, there is a depth of 26 fathoms, with deeper water immediately outside.

Jebel Jenjeli (Kinkeri) is a remarkable conical hill, close to the sea, composed of limestone traversed by veins of chalk and gypsum.

At 15 miles north-eastward from Jebel Jenjeli, is Jebel Musaira (Masirah), of similar formation, with a rocky irregular coast between them; and 4 miles farther, immediately over Ras Nus, is Jebel Nus 1,200 feet high, the eastern termination of the high mountainous range Jebel Samhan. Between Jebel Musaira and Jebel Nus is a small

* See Admiralty Chart :—South-east coast of Arabia, No. 10b.

valley with a little brushwood ; otherwise the same rocky irregular outline of the coast extends to Ras Nus, with deep water close to the shore the whole way.

The belt of low land from Merbat to Ras Nus, a distance of 36 miles, is named Sellha. The whole is extremely desolate, there being no sign of vegetation to be seen, yet antelopes and hares manage to pick up a subsistence in the hollows of the watercourses. Near Ras Nus is a ravine, with some date trees, through which runs a stream, after heavy rains.

Weather.—During the prevalence of the strong north winds named belats, which are experienced in Khorya Morya bay, and to the westward of Merbat, a strong south-easterly wind will be found blowing over Merbat during the day, and light variable airs during the night, *see* page 6. Rain seldom falls at Merbat, but to the westward the mountains and valley of Dhofar experience a great deal at times, during south-west monsoon period.

RAS NUS is a low but prominent rocky cape, forming the south-west extremity of Khorya Morya bay, and the south-east point of a small boat anchorage, named after it.

The cape may be easily known by Jebel Nus, 1,200 feet in height, immediately over it, and shaped like a gunner's quoin, the highest and most precipitous part being near the sea, something like a bluff. Immediately south-westward of Ras Nus is a large mass of rock near the sea, shaped like a tub.

Bander Nus is a small anchorage formed between Ras Nus and Ras Samhár, affording shelter from southerly and westerly winds. The anchorage is close to the shore, there being 9 fathoms water at about 500 yards off.

Ras Samhár is a low rocky point, forming the northern extremity of Bander Nus, having a reef off it, and two small rocks a few yards distant. In a small valley between Ras Samhár and Ras Hullan, and about one mile from the sea, is the tomb of Nebi Saleh bin Hud ; it was once an edifice of some strength and splendour, being 50 feet long, and nearly the same in breadth. The whole is now a mere heap of ruins.

Water.—Firewood.—Close to the anchorage in Bander Nus is a spring of good water, sufficiently abundant to supply two or three vessels in one day, and may be known by a grove of date trees near to it. Also in Wadi Samha, a small and wooded valley situated to

the northward between Ras Samha and Ras Hullan, is a spring of fresh and a pool of brackish water, near the sea; firewood may be cut from the ravines in the neighbourhood.

RAS HASIK, a low projecting rocky point, about 9 miles northward of Ras Nus, forms the south point of Ghubbet-al-Dom.

The coast here presents a very striking scene; the unbroken face of the limestone mountains, with the sharp peaks of the granite ranges, one of which, Jebel Habrut, attains the height of 4,000 feet, are very grand; yet it has a most wretched appearance from the sea, not a particle of vegetation being perceptible to the eye. On shore, however, the valleys are found to be well wooded, having either wells or a rivulet of fresh water.

Bander Hasik is a small bay on the north-western side of Ras Hasik, affording shelter from southerly winds. The soundings do not extend any great distance off shore, there being no bottom at 130 fathoms 500 yards off. Close to the shore the depths are from 5 to 12 fathoms.

In a valley at a short distance from the head of the bay are the ruins of the ancient town of Hasik, and a well of brackish water. The natives here are wretched in the extreme, living entirely on fish, and many of them without clothing. Immediately to the southward of Ras Hasik is a plain called Súk Hasik, from its having been the market-place when Hasik flourished, off which there is shelter for two or three boats from northerly winds.

An inlet of the sea (the bed of which is now a marsh, separated from the sea by a ridge of sand) once existed in the valley of Hasik, and in all probability formed the ancient port, as its waters would almost wash the base of the old ruined town. A few stunted date trees are scattered over its surface, and the bed of the valley higher up is densely filled with acacias, tamarasks, and other small trees. The slopes of the mountains produce frankincense, which is collected in small quantities, in the proper season, by the bedouins.

Between Merbat and Ras Hasik the 100-fathom line of soundings approaches in some places to within half a mile of the shore, and in others to 2 and $2\frac{1}{2}$ miles. Sailing vessels, therefore, should keep a good offing, as there is no anchorage, in the event of being becalmed.

KHORYA MORYA (Kuriya Muriya) BAY is the extensive bight in the coast, lying between Ras Nus and Ras Sharbitat, a

distance of 70 miles, and having on the outer edge of the bank of soundings, the five Khorya Morya islands, the largest four of which lie in a nearly east and west direction.*

The depths in the bay are fairly regular, varying from 20 to 40 fathoms, decreasing towards the shore and islands, with a bottom of sand, coral, and shells; but occasionally rocky near the islands, and Ras Sharbitat. The shore of the bay presents a succession of limestone cliffs and sandy beach.

There are no villages; the few inhabitants live in excavations of the rocks, and subsist entirely on fish.

Ghubbet-al-Dom, on the west side of Khorya Morya bay, lies between Ras Hasik and Ras Muntajib. The coast between Ras Hasik and Ras Tihrrar, a low sandy point, is irregular, thence around the bay (with the exception of a sandy spot just northward of Ras Attabarran, and 7 miles northward of Ras Tihrrar, fronting a valley, where there is a pool of water), it is high, precipitous, and tabular, containing three conspicuous valleys. The soundings in this bay are regular; the 10-fathoms line being nearly one mile, and the 20-fathoms line 3 miles off-shore.

Wadi Reikut, fronted by a sandy cove, is said to extend to the confines of Hadramaut, having the peak of Habrut and the Samhan range of mountains as its southern boundary. It appears to be thickly wooded and well watered; the breadth of the watercourse, and the huge masses of rock that have been swept down it, fully denote a strong torrent after a heavy fall of rain. At the entrance to the valley are a spring of fresh, and a lake of brackish water.

Ras Muntajib is a bluff headland, with a rugged peak close northward of it.

The coast from Ras Muntajib takes a northerly direction for 7 miles, where the steep cliffs terminate, and the high land recedes from the shore 2 or 3 miles, and after continuing in a line parallel to the beach, again reaches the sea at the high and dark point of Shuwamiyah. The shore and plain fronting the mountains are low and sandy, with some bushes; there is a sand hill at the western extreme of the plain, and a clump of trees at the eastern extreme.

The coast from the dark point of Shuwamiyah again assumes a bold character, being composed of steep cliffs, forming a table-land

* See Admiralty plan of Khorya Morya (Kuriya Muriya) bay and islands, No. 11; scale $m = 0.5$ of an inch, with sketches of the coast.

of from 400 to 600 feet elevation, which run in an unbroken line for 25 miles in an easterly direction.

Ras Shuwamiyah is a point 10 miles eastward of the dark point of Shuwamiyah. The coast is bold, having 12 and 15 fathoms water within 500 yards of the shore.

Ras Minji, a slightly projecting bluff, nearly 700 feet high, is $10\frac{1}{2}$ miles eastward of Ras Shuwamiyah, with a pool of fresh water near the sea, close eastward of it. The point forms the boundary between the Garra and Jenaba tribes.

The soundings between Ras Shuwamiyah and Ras Minji are from 30 to 33 fathoms at half a mile off-shore, with overfalls.

The cliffs about 2 miles eastward of Ras Minji are 700 feet high, from thence decreasing to the eastward, where they terminate one mile inland. Between this point and Ras Karwao the shore is low and sandy for 7 miles, resuming its cliffy character about 2 miles westward of that point.

Ras Karwao is a bluff tabular headland, about 800 feet in height, with steep, precipitous sides. Its component parts are a species of sandstone, lying over a horizontal stratum of chalk, with masses of flint and fossil remains embedded in it, of about 25 to 30 feet in thickness, while the former varies in thickness from 5 to 10 feet. In some places, between the two strata, are enclosed beds of shells, coral, and other marine productions. The summit appears to be composed of tertiary limestone, with fossil remains.

There is a sand-hill to the westward of Ras Karwao, and the cliffs here are fronted by a piece of low land, with off-lying rocks. At the western extreme of the low land there is a small salt-water lake, at the head of which the water is fresh.

Ras Sharbitat, 2 miles eastward of Ras Karwao, and forming the eastern point of Khorya Morya bay, is a precipitous bluff, having an even table surface, and a deep notch or concavity in the face of it.

Anchorage.—Native boats, running down the coast, frequently anchor for shelter from the belât or northerly winds, off the low sandy coast to the westward of Ras Karwao, known as Bander Sharbitat. There is good anchoring-ground all along here, in from 5 to 10 fathoms water; but towards Ras Minji, the bank suddenly deepens from 7 to 30 fathoms. The bottom is sand in the anchorage depths, but outside it becomes mixed with rock.

During the beláts, which blow with great violence in this bay, a sailing vessel coming from the eastward should round Ras Karwao very close, and be prepared for strong gusts, both in rounding and making towards the anchorage, off the pool of water. A large mangrove tree near the pool affords a conspicuous mark for knowing the position of it.

KHORYA MORYA (Kuriya Muriya) ISLANDS.—These islands are five in number, namely, Haski, Soda, Hallaniya, Kabliya, and Kirzwet or Rodondo. The first four are situated on the edge of the bank of soundings, and lie in a line nearly east and west parallel with the north shore of the bay, from which they are distant about 2 miles. They are generally bold and rocky, and rising in regular conical peaks.

This group of islands belongs to the British Government, having been ceded by the Imaum of Maskat for the purpose of temporarily landing the Red sea and India telegraph cable, of which Hallaniya was the signalling station.

Haski, the westernmost island of the group, lies about 15 miles east north-eastward of Ras Hasik, and is $1\frac{1}{4}$ miles in length by three quarters of a mile in breadth; its south end rises in two conical peaks, close together, attaining a height of 500 feet. It is composed of granite, without a vestige of vegetation, or any appearance of ever being inhabited. The surface is quite white, from the guano deposit.

The island is rocky all round, with two small bays on its eastern side. Half a mile S.W. by W. $\frac{1}{2}$ W. from the north-west point is a shoal about a quarter of a mile in extent, with rock 150 yards long on it, dry at low water; between it and the island there is a depth of 16 fathoms. There is no other danger.

The average depths around the island are from 25 to 30 fathoms at one mile distance. The edge of the bank of soundings passes near the south point, there being no bottom at 145 fathoms half a mile off. The channel between Haski and Soda is safe, with the exception of the sunken rock off the west side of Soda.

Soda is the second island of the group from the westward, and the second largest in size, being 3 miles long east and west, by 2 miles wide, and lies 12 to 13 miles east from Haski. Its shores has many small projecting points, off which reefs extend from 100 to 300 yards, forming coves for small craft. The east end is entirely fronted with rocks.

The outline of the island is an irregular slope from the highest peak, which is near the centre, and 1,310 feet above the sea level ; the whole is extremely barren, having no trees but tamarisks, and only a small quantity of grass and moss near the summit of the peak. It was inhabited many years since, and the remains of rude dwellings are still visible near a well close to the south-east point, the water of which is brackish.

Rock.—Half a mile West of the south-west point of the island is a sunken rock, surrounded by a bank half a mile in extent, with 2 and 3 fathoms water, between which and the shore is a narrow channel, having from 5 to 6 fathoms.

Anchorage.—On the south side of the island there is a bay, half a mile wide at its entrance, and about 1,500 yards deep, with good anchorage, having 10 fathoms water in the centre, decreasing as the shore is approached. A ledge of rocks extends 500 to 600 yards from the eastern point of the bay, in a south-westerly direction, and there is a sunken rock at a short distance from the western point. This bay affords shelter from all winds, except from W.S.W. to South.

The soundings round Soda are deep, there being 20 to 30 fathoms, close-in, between the east and north points ; from the north to the west point 20 to 30 fathoms at one mile off ; 40 fathoms at one mile off the south-west side ; and the edge of the bank passes three quarters of a mile from the south side, there being 130 fathoms at that distance. The bottom is sand and rocks on the east and west sides of the island ; sand, shells, and coral on its north side, and gray sand on its north-west side.

If passing between Hallaniya and Soda, keep the Soda side, which may be safely approached to within half a mile, to avoid the rocks lying off the western end of Hallaniya, which reduce the width of the channel to $2\frac{1}{2}$ miles. There are depths of 12 to 20 fathoms in mid channel.

Hallaniya, the largest island of the group, is $7\frac{1}{2}$ miles long east and west, by $4\frac{1}{2}$ miles broad, and lies $4\frac{1}{2}$ miles eastward of Soda. The general appearance of the island is rugged, the centre being filled with numerous granite peaks, the highest of which is 1,503 feet above the sea, forming a chimney peaks closely united, and terminating at the eastern and western ends of the island in comparatively low points. The mountains terminate at the north point of the island in a bold, projecting, limestone bluff, 1,645 feet in height.

being the loftiest part of the island, and presents a rugged and nearly perpendicular cliff to the sea for upwards of a mile on each side of the point. The whole island is extremely barren, the largest and only tree being the tamarisk ; there is a little grass on the eastern side.

It is the only island of the group that is inhabited, and only by a few people, who live in huts on the north-west side of the island, situated about one third of a mile from the beach. They are almost entirely dependent on the fish they catch for their subsistence. A few boats occasionally touch here on passing, and exchange small and useful articles for dried fish.

Reefs.—There are several shoals and isolated rocks off the west end of Hallaniya, between which are narrow channels of from 5 to 10 fathoms. One of these rocks, three quarters of a mile from the point, dries at low-water springs ; the westernmost patch is $1\frac{1}{4}$ miles from the point. Off Ras Saur, the eastern point of the island, and for $2\frac{1}{2}$ miles south-westward, the coast is fronted by a reef of rocks, extending in some places from a half to three quarters of a mile. One-third of a mile S. by E. of the south point of the island is a small bank, having $3\frac{1}{2}$ fathoms water, and in the bay to the westward of the point is a reef of rocks close to the shore.

Anchorage.—The best anchorage at Hallaniya is in from 8 to 12 fathoms, sand, on the north side, at about one mile from the west extreme, and a quarter of a mile off a small sandy nook, but it is open to all winds from East through north, to West. Vessels anchoring here in the north-east monsoon must therefore be prepared to start at a moment's warning, the beláts, or northerly winds, setting in very suddenly, when the coast becomes a dead lee shore.

There is also good anchorage in Ghubbet Ar-rahíb on the north-east side of the island, in from 7 to 14 fathoms water, with shelter from all winds between S.E. through south to N.W. During the strength of the south-west monsoon a considerable sea gets into this bay, at which time the western anchorage is preferable.*

Water.—Fresh water may be obtained in Ghubbet Ar-rahíb, from a well, 400 yards from a nook with a sandy beach, which may be known by a small peak that forms its eastern end ; its position will be seen on the chart. Two other wells are situated towards the western end of the island, one near the western anchorage on the north shore, and the other on the south side.

* Remark Book, Navigating Lieut. F. Roberts, H.M.S. *Rifeman*, 1875.

Kabliya, the eastern island, and third largest of the group, is nearly 2 miles long, by $1\frac{1}{2}$ miles broad, forming from every point of view several limestone peaks, the highest of which is 550 feet above the sea. It is a barren rock, and rocky all round, with the exception of a small sandy bay at the north-west point.

The channel between Hallaniya and Kabliya is $12\frac{1}{2}$ miles wide, with from 20 to 46 fathoms water, and free from danger.

Four Peaked Rock, so named from its outline, lies two thirds of a mile W.N.W. from the north point of Kabliya, with a rocky channel between them of 2 to 3 fathoms. It is about 100 feet above the sea, and has a rocky ledge extending half a mile north-westward, on which there are four rocks above water; parts of the reef dry at low-water springs.

Well Rock, so called from its having a natural well, filled with salt water, which is probably thrown up during the south-west monsoon. It lies 800 yards off the south-west point of Kabliya, with depths of from 7 to 10 fathoms between.

Tilly Rock, with 3 fathoms water, lies E. by S. $\frac{1}{4}$ S. rather more than one mile from the east extreme of Kabliya.

There is a small and dangerous rock, awash at low water, and which usually breaks, lying $2\frac{1}{2}$ miles eastward of Tilly rock, with the east point of Kabliya bearing W. $\frac{3}{4}$ S., distant $3\frac{1}{2}$ miles. Four-peaked rock, well open north of the island, leads northward of it. Vessels should be careful in rounding the east end of the island at night, as these rocks are steep-to, and the depths around are irregular.

Anchorage.—There is indifferent holding ground requiring a long scope of cable, on the north side of Kabliya, the bottom being loose and decayed coral; on the south side there is also anchorage in about 12 fathoms, similar bottom, with Well rock bearing W.S.W., and west extreme of island W.N.W. There is no water on the island.

Kirzwet, or Rodondo, is a mere rock, with a double peak, the highest of which is 230 feet above the sea; the base of the island is formed of four red granite rocks, all closely grouped together. It lies $5\frac{1}{2}$ miles north-eastward of Hallaniya.

A sunken rock lies about 300 yards West of Kirzwet, and another 150 yards N.W., with depths between them of from 8 to 16 fathoms. Close off the east point of the island are two rocks above water; on all other bearings there is 20 fathoms water within 500 yards of the island.

Tides.—It is high water, full and change, in Khorya Morya bay and amongst the islands, at 8h. 20m.; rise at springs, $6\frac{1}{2}$ feet. The flood-tide southward of the islands, sets to the eastward.

Current.—Between Ras Farták and Ras Nus the current often runs against the wind during the north-east monsoon; but amongst the Khorya Morya islands it varies very much, and frequently set to the north-westward, rendering it unsafe if becalmed near the islands: it is advisable, therefore, to pass well southward of them, unless when land and sea breezes prevail, when a sailing vessel may make progress against the monsoon by keeping close in with the coast.

CHAPTER VI.

RAS SHARBITAT TO RAS-AL-HADD.

VARIATION in 1887.

Ras Madraka $0^{\circ} 30'$ W. | Ras-al-Hadd $0^{\circ} 0'$.

The **COAST** from Ras Sharbitat trends north-eastward for 12 miles, as far as Ras Sukra, presenting a noble limestone cliff about 600 feet in height, precipitous to the water's edge, and tabular at the summit. It is bold to approach, there being 20 fathoms water close to the cliff.* The soundings along this part of the coast are regular. At a distance of 26 miles, E. by S., from Ras Sukra, is a coral bank of from 21 to 27 fathoms.

Ras Sukra is a prominent bluff cape, rising 600 feet above the sea, and forms the south-western extreme of Sukra bay.

From the north-eastward Ras Sukra appears a perfect bluff; northward of it is Funnel or Tower hill, which at first appears separated, but on a nearer approach is found to be situated on the summit of the adjacent table land. The whole line of coast, when the sun shines on it, has the appearance of clay cliffs. From the barn-shaped hill the table land takes a more easterly direction, and gradually approaches the shore at the eastern extremity of the bay.

SUKRA (Saukirah) BAY.—The coast from Ras Sukra trends northward for a distance of 35 miles, when it gradually curves away eastward nearly 60 miles, as far as Ras Khishayim, forming between the two points the deep bay of Sukra. The shore is low and sandy throughout, and thinly sprinkled with mangrove bushes, but from 5 to 10 miles in the interior is a range of moderately elevated tabular hills. During the north-east monsoon there is always a heavy swell rolling into the bay, and a high surf on the beach.

There are no villages in the bay, and it is but scantily inhabited by a few miserable fishermen of the Jeneba tribe, who have no boats,

* See Admiralty charts; gulf of Aden, general, No. 1012; and North-east coast of Arabia, No. 10 c; scale, $m=0.10$ of an inch. This description is chiefly from a memoir by Lieut. A. M. Grieve, Indian Navy.

but fish sitting on inflated skins, which they manage with great dexterity, pushing themselves safely through the high surf. They catch great numbers of sharks, which, strange to say, never attack their exposed limbs. The fins and tails of the sharks are dried, and exported to Maskat by passing vessels.

The depths in Sukra bay are from 6 to 12 fathoms near its south-western extremity, but deeper and more regular at its north-eastern end. For a distance of 45 miles northward from Ras Sukra, the bay is shallow to a distance of 5 to 7 miles, over which portion there is generally a strong ripple, whereby it has derived the name of Rig-al-Jázir, but there appears to be no danger except close in, eastward of Funnel hill, where a rocky bank, nearly dry at low water, extends 2 miles or more from the beach. Towards the eastern extreme of the bay the shore is safe to approach, the 10-fathoms line being about 2 miles off.

Ras Khishayim is a dark slightly projecting bluff at the north-eastern extremity of Sukra bay, and 8 miles westward from Ras Madraka.

Takiyat Abak (Abaks cap), so named from its supposed resemblance to a man's head-dress, is a bluff point, 333 feet above the sea, at 4 miles south-westward of Ras Madraka.

Bander Jezirat, lying between Ras Madraka and the cliffs of Ras Khishayim, is a small bay with a sandy beach. In this bay the bottom is of mud and sand, and a vessel may anchor in any part of it. Should the wind shift to the south-westward and blow strong, which is not at all unfrequent during the north-east monsoon, a vessel should shift her anchorage to the north side of cape Madraka. Trading craft from the northward often anchor here, for the purpose of procuring sharks' fins.

RAS MADRAKA (Ras-al-Jezirat or Isolette) is a dark point, with a rocky islet, about half a mile in length and 60 feet high, lying off, with a depth of 2 feet at low water in the channel between. The point forms the south-west point of the gulf of Masíra.

The land about the point is composed of black volcanic peaks, with flat-topped hills in the background, of an average height of 450 feet. Copper ore of a poor quality is found in the vicinity.

When approached from seaward, the point appears like an island, hence its name Jezirat or Isolette. On being first seen, it

presents the appearance of small detached hillocks, but on a nearer approach the peaks become connected, and a small remarkable circular hill is observed on summit of the point.

The point is bold to approach, there being 12 fathoms water within half a mile of the shore; the edge of the bank of soundings is distant 10 miles in an easterly direction.

Anchorage.*—A good position in south-west monsoon, northward of Ras Madraka, is with the east extreme of islet bearing South, about three quarters of a mile, Table hill S.W. $\frac{3}{4}$ W., and Black rock point, W. by N.; small vessels might get farther in, but a long swell sets in here. This is a good place from which to await the slave dhows, which leave the Zanzibar coast bound to Persian gulf early in south-west monsoon. No supplies are obtainable from the natives, who make themselves scarce, but an abundance of fish may be taken in the seine.

GULF OF MASÍRA.—The gulf of Masíra is the extensive bight lying between Ras Madraka and Masíra island.

The whole coast of the gulf is desolate, and thinly inhabited by small parties of the Jeneba tribe, who subsist solely on fish.

Shoals in the approach.—Shab Kadun, or San Carlos Banks, are several coral patches lying off the coast between Ras Markaz and Ras Kuweirát, extending about 20 miles in a north-east and south-west direction; the western extreme of the south-western patch, which is 4 miles in length, lies with Ras al Aani, bearing W. by N. $\frac{1}{4}$ N., distant 5 miles. From the central or shoalest bank, on which the *San Carlos* struck, Ras Kuweirát bears N.W., and Ras Madraka table hill S. by W. $\frac{3}{4}$ W., both of which are visible from a vessel's deck.

The soundings on the banks are from 4 to 9 fathoms, with a coral bottom; considerable swell rolls over the shallow parts, and in a heavy sea would probably break. Between the banks the depths are from 12 to 14 fathoms, sand and shells, and between the south-west extreme and the land 16 to 19 fathoms, sand and shells.

These banks should not be approached under a depth of 20 fathoms.

Shab-Bú-Saifeh, or Palinurus bank, is a coral bank nearly 12 miles in length, with an average breadth of 5 miles, tapering to the southward. It has depths of 6 to 10 fathoms, over it, 16 to 20 fathoms on its eastern edge, and 15 to 17 fathoms on its western edge.

* See plan on Admiralty chart; No. 10c.

From the south point of the bank, Jezirat Hamar-an-Nafúr, bears W. $\frac{1}{2}$ S., about 23 miles, and is visible from the masthead. For reefs within these, *see* page 142 and the chart.

Between Shab-bú-Saifeh and Shab Kadún, the depths are from 14 to 17 fathoms, sand and shells, and between Sháb-bú-Safeh and Jezirat Hamar-an-Nafúr, they vary from 12 to 20 fathoms, nearly all mud.

Caution.—A near approach to the gulf should be avoided by vessels passing up or down the coast, owing to the numerous dangerous coral patches and banks which exist within its limits, and to the indraught, which at times exists near and within the shoals, particularly on the flood, which runs from N.N.W. to N.W., at the rate of $1\frac{1}{2}$ miles per hour (the ebb runs at the same rate in the reverse direction). Beyond the limits of the bank of soundings the tidal set is parallel with the shore, but probably swallowed up by the prevailing current. As there is ample room for soundings being taken between the outermost of the reefs and the edge of the bank of soundings, a distance of 10 to 15 miles, common attention to the lead will prevent any vessel running into danger. During strong winds there is always a heavy swell rolling in, and on many parts of the numerous banks the sea breaks heavily.

Tides.—It is high water, full and change, at the outer shoals, at 9h. 30m.; springs rise 10 feet; the set is as before mentioned, when not affected by current.

The Shore of the gulf of Masíra, from Ras Madraka, trends northward for 10 miles to Ras Markaz; it is sandy with hills immediately behind, till within 2 miles of the latter point, when it assumes a bold precipitous character. From Ras Madraka for a distance of $3\frac{1}{2}$ miles, it is fronted by a narrow sandbank, which dries at low water. The land immediately in the interior is tabular, and elevated from 460 to 480 feet above the sea.

Ras Al-Dthila, a small projecting rocky point, 5 miles northward of Ras Madraka, is the commencement of an uniform line of table land which extends as far north as Ras Kuweirát, descending to the sea in perpendicular cliffs, varying in height from 230 to 480 feet in height. The land at Ras Dthila is elevated 470 feet above the sea.

Water.—Fresh water may be procured in small quantities at the point, and the fishermen will take it to a vessel at a reasonable price.

Ras Markaz is a bold, projecting, bluff point, and the highest part of the table land, being 480 feet above the sea. It is bold to approach, there being 6 fathoms water within 300 yards of the point.

The bank of soundings extends 10 miles off Ras Madraka, increasing to 20 miles off Ras Markaz, and is perfectly free from danger until the San Carlos bank is approached. The bottom is chiefly composed of sand and shells.

Ras Khaisat al Liyokh.—The coast from Ras Markaz curves north-westward for a distance of 4 miles, as far as Ras Khaisat al Liyokh—a bluff difficult to make out unless close in-shore—forming a small bay with a sandy beach, from which the lofty cliffs recede nearly three quarters of a mile.

Anchorage.—The bay affords good shelter from southerly and south-westerly winds, with safe anchorage in from 6 to 7 fathoms, over a sandy bottom.

Ras al Aani.—From Ras Khaisat al Liyokh to Ras al Aani, a distance of 14 miles in a northerly direction, the coast presents an uninterrupted line of bold perpendicular cliffs, and is safe to approach, there being depths of 3 to 4 fathoms close-to, and 10 fathoms within half a mile.

Ras al Aani is a bluff point, elevated 284 feet above the sea, from which the coast runs north-westward, 5 miles to Ras Mattáh, which is a bluff projecting point, 230 feet above the sea. From Ras Mattáh, the coast trends northward for $9\frac{1}{2}$ miles to Ras Kuweirát; for the first 5 miles the cliffs are fronted by a sandy beach.

Ras Kuweirát, a sharp projecting bluff, with a small peak on the extremity, 280 feet high, is the termination of the bold perpendicular cliffs just described.

Ghubbet Kuweirát is a bay formed between Ras Kuweirát and Sireir, the shore of which is a sandy desolate plain, thinly covered with mangrove bushes.

Sireir is a low rocky point, with two small rocky islets close off it. The bay is free from danger, having depths of from 3 to 6 fathoms, sand and coral, at a distance of 3 miles from the shore.

Boat Anchorage.—Close under Ras Kuweirát there is a sheltered anchorage from south-westerly winds, available for boats only, the water being shallow.

Jezirat Hamar-an-Nafúr is a perpendicular limestone islet, one-fourth of a mile in diameter, 320 feet high, and situated 3 miles eastward of Sireir. The summit is flat, and split in all directions. Myriads of wild fowl frequent it, and there is an accumulation of guano, which is occasionally taken away by the Arabs for the purpose of agriculture. Close to, both on the eastern and western sides, are some sunken rocks.

The channel between the island and the main is free from danger, having depths of from 3 to 6 fathoms, clay. Seaward of the island the depths are 8 and 9 fathoms at the distance of 2 miles.

Ras Sidarra is a low, ill-defined, sandy point, $4\frac{1}{2}$ miles northward of Sireir, the coast between being alternately sand and cliff. On the point is a small village and a date grove, and immediately inland are several groups of conical hills.

The soundings off this part of the coast are regular, with a muddy bottom.

Ras Nakhreir.—From Ras Sidarra the coast continues in a northerly direction for about 5 miles to Ras Nakreir, a bold, bluff point, 465 feet above the sea; for 2 miles to the southward of it the coast is of the same bold nature, being a perpendicular cliff down to the water's edge.

From the point the coast trends north to Ras Saráb, a distance of 12 miles, the beach being sandy the whole way, with a range of hills 700 to 800 feet high rising abruptly above it. At $3\frac{1}{4}$ miles from Ras Nakhreir is Ras Eikeit, a low sandy point.

From Ras Sidarra to Ras Saráb the coast is safe to approach, there being depths of 4 to 5 fathoms at one mile from the shore. Beyond this distance is an extensive flat of from 6 to 15 and 20 fathoms water, with a muddy bottom towards the shore, and sand and shells, with patches of coral, farther out.

Ras Saráb is a low, sandy, ill-defined point, near which is a small village.

Water.—Fresh water is procurable at this point, the fishermen being willing to carry it off to a vessel at a reasonable charge.

From Ras Saráb the coast trends north-eastward for a distance of 14 miles to Ras Bintót; the shore is low, sandy, and forms the bay of Ghubbet Saráb.

Reefs.—**Shab Ghubab** is a breaking patch, half a mile in length, with depths of 6 to 8 fathoms close around. It lies 7 miles from the shore of Ghubbet Saráb, with Ras Bintot bearing N. $\frac{1}{4}$ E. distant 3 miles, and Jebel Shabatein N.W. $\frac{1}{3}$ W.

Four miles westward of Shab Ghubab is a rocky bank, with $2\frac{1}{2}$ to 3 fathoms water. At 2 miles S.S.W. $\frac{1}{2}$ W. of Shab Ghubab is a bank with $5\frac{1}{2}$ fathoms water. At 6 miles S. by W. is the north extreme of a reef 4 miles in length; and midway between Ghubab and Shab-bu-Saifeh is a reef about $3\frac{1}{2}$ miles in length.

From the west side of Shab-bu-Saifeh, northward to Kinasat Hikmán, and to Masíra island, the general depths are from 7 to 10 fathoms, sand and coral, with occasional overfalls. From the same side of the shoal westward, the depths are from 13 to 17 fathoms mud, decreasing to 9 fathoms off Ras Bintot. There are a few detached patches of coral, with 7 to 10 fathoms water, but no known dangers exist except those just described.

The Coast.—**Jebel or Karn Shabatein**, a conspicuous peaked hill, 483 feet high, lies 8 miles westward of Ras Bintot, and forms an excellent mark for avoiding the dangerous breakers of Shab Ghubab.

Ras Bintot is a low, broad, sandy point, forming the north-east extreme of Ghubbet Saráb, and the south-west extreme of Ghubbet Bintot. From the south point of the cape a rocky spit with 3 fathoms extends S. by W. 4 miles, with depths of from 6 to 7 fathoms, mud close-to.

Ghubbet Bintot lies between Ras Abana and Ras Bintot; the shore is sandy, backed by a range of hills rising from Ras Abana, which turn away to the westward north of Karn Shabatein. The bay is free from danger, the depths varying from 3 to 6 fathoms, over a mud bottom.

Ras Abana is a low rocky point, with a low range of hills rising from it, and forms the western point of entrance to Ghubbet Hashish.

Water.—Fresh water may be procured at this point in small quantities, the natives supplying it at a reasonable charge.

Shab Iziyat, a patch of rocks covered at high water, lies with Ras Abana bearing N.W. by $\frac{1}{4}$ W. distant $1\frac{1}{2}$ miles, with a clear channel between of from 5 to 7 fathoms water, rocky ground, the deepest water being close to the shoal.

There is a small rocky bank of 3 fathoms lying S.W. by W. nearly 2 miles from Shab Iziyat.

GHUBBET HASHISH, at the head of the gulf of Masíra is a bay 7 miles wide, between Ras Abana and Ras Shijarét, by 12 miles length, with depths of from 4 to 7 fathoms in the entrance. In approaching the bay care must be taken to avoid the foul ground extending 7 or 8 miles southward of Bar-al-Hikman peninsula.

The shore of the bay is low, sandy, and desolate throughout. On the western side, in the interior, is a low range of hills. Close to the coast, at $1\frac{3}{4}$ miles N. by W. of Ras Abana, is a pyramidal hill 120 feet in height.

Near the centre of the bay is Jezirat Ab, a low, rocky islet, with a small rock off its south end, from which a mud bank extends 3 miles in a northerly direction, dividing the bay into two parts, and then spreads out on either side to the eastward and westward, extending from the north shore of the bay for a distance of 4 miles. This mud bank dries at low water, rendering the shore inaccessible before half flood.

Anchorage.—The portion of the bay eastward of Jezirat Ab is 2 miles in width, with depths of from $1\frac{1}{2}$ to 3 fathoms, sand. The portion of the bay westward of the island is 5 miles wide, with depths of from 3 to 6 fathoms, mud.

A little to the westward of a line drawn between Ab and Rig islands, and nearly equidistant from both, there is a patch of sunken rocks.

Village.—On the mud bank near the head of the bay, are two islands; one, named Rig, is rocky and steep; the other, named Mahút, is low, sandy, and thickly covered with shrubs and mangrove bushes, and has a village on it containing about 300 inhabitants of the Jeneba tribe.

On the north-eastern side of the bay is the entrance to a creek which is reported by the natives to communicate with Masíra channel; but more probably with Khor Milh, a salt-water lagoon close to the beach, eastward of Ras Zeiwari.

Supplies.—Very good sheep, firewood, and fresh water may be procured at the village on Mahút island.

Fogs.—Thick fogs are prevalent in the vicinity of Ghubbet Hashish and the gulf of Masíra during the north-east monsoon, which are borne down with rapidity by a sudden impulse of wind from the northward.

Tides.—It is high water, full and change, at Jezirat Ab, at 10h.; rise of springs, 10 feet. Flood sets into the bay N.N.W. Ebb runs S.S.E., at a velocity of three quarters of a mile per hour.

The Coast.—**Ras Shijarét**, off which is a small rocky islet, is a low sandy point, forming the eastern point of entrance to Ghubbet Hashish.

The coast from Ras Shijarét trends south-eastward, $5\frac{1}{2}$ miles to Ras Zeiwari; thence east to Ras Mishsiýu, 10 miles. It is low, sandy, and desolate for the whole distance, and fronted by a coral bank, which dries at low water, and extends from half a mile to $1\frac{1}{2}$ miles from the shore, with over falls of from one to 3 fathoms, extending 3 miles off shore.

Kinasat Hikman is the name given to the extensive reef which begins at Ras Shijarét, thence stretching away to 6 or 7 miles south-west and southward of Ras Zeiwari, with the foul ground of 5 fathoms and less, extending for 7 miles off-shore as far as Ras Mishsiýu. It consists of dangerous coral patches, some of which are dry at low water. The low land of Bar-al-Hikman is only just visible from the extreme edge of this foul ground, and no part of Masíra island can be seen.

Ras Zeiwari, the south-west point of Bar-al-Hikman peninsula, is a low, sandy point. Immediately inshore to the eastward, and separated from the sea by a narrow ridge of sand, is Khor Milh, an extensive salt-water lagoon.

About half-way between Ras Shijarét and Ras Zeiwari is another low, round, sandy point, named Ras-al-Hassí.

The Bar-al-Hikman peninsula, which divides Masíra channel from Ghubbet Hashish is very low, sandy, and covered with bushes for many miles.

Ras Mishsiýu is a low, sandy point, forming the western boundary of the south entrance to Masíra channel.

MASÍRA ISLAND is 36 miles long, in a north-north-east and south-south-west direction, by 10 miles in breadth, containing nearly 200 square miles of surface. It is distant from the mainland from 9 to 11 miles, between which are several islets, shallow banks and rocky patches, leaving only narrow navigable channels.

The island is generally of a hilly aspect, but low in the centre and at the northern extreme. The hills form into clusters of small peaks, the greatest elevation being 620 feet, and the average about 400 feet. Approaching the island from the north or north-eastward, the most

conspicuous hill is Jebel Mathrúb, a rounded hill on the northern range, elevated 620 feet above the sea, standing amid a cluster of lesser hills, one of which is named Sharp peak from its peculiar form. Nearly all the hills are of volcanic formation, except some table land in the vicinity of Ras Yei.

The depths on the eastern side of the island are irregular, as regards distance from the shore, but increase gradually to seaward. There are several shallow patches at some distance from the shore, hereafter described.

The island is barren and sterile, and produces no vegetation beyond two or three date groves and a few pumpkins. There are a few gazelles, hyenas, jackals, and wild asses on the island.

Copper ore of a poor quality exists near Jebel Sawir; and the remains of smelting furnaces are still extant, said to have been used by the Persians many years ago.

Population.—Produce.—The population of Masíra island amounts to about 600 souls, of the Jeneba tribe, all miserably poor, subsisting chiefly on fish, and are said to be not over friendly to Europeans; they have no cattle, but possess a few dhows and many fishing boats. Fish of very excellent quality is plentiful all round the island. Sharks abound, and are caught for their fins and tails, which are dried and exported to Maskat for the Chinese markets.

Turtles abound between Masíra and the mainland, but more particularly in the neighbourhood of Ghubbet Hashish. There are two kinds, the edible, probably the *Chelone mydas*, and the inedible *C. imbricata*, or hawk's-bill turtle, both common to the Indian Ocean. They grow to much about the same size, one of the former weighed 266 lbs. The latter, or inedible turtle as it is termed, from being much less fleshy and much less fat, yields the turtle shell of commerce. The inedible turtle is much scarcer than the edible one. The carapaces of both species are used by the Arab fishermen for fireplaces in their boats.

Ambergris is also sometimes found at Masíra, as well as on the opposite coast. The sperm whale is common, and several other species of cetacea, and of course with myriads of cuttle-fish and cephalopods of all kinds, on which the whale feeds.

The climate of the island is generally healthy. Thermometer ranges in the north-east monsoon from 68° to 78° Fahrenheit. Rain is very unusual, but, judging from the enormous watercourses visible in all parts of the island, it must fall heavily at times.

East and North Coast of Masíra.—**Ras Abu-Rasás**, the south point of Masíra island, is a low, rocky, sharp point, having a conspicuous conical hill, 468 feet high, within, named Jebel Sawir.

Reefs.—About three quarters of a mile S.S.W. of the point is a small breaking patch named Shab-Abu-Rasás, with 5 and 6 fathoms water between it and the point. Shab Matreih, a coral reef, with from 4 to 6 feet water, lies $1\frac{1}{2}$ miles to the westward of Shab-Abu-Rasás. E. by S. from the point, and distant $1\frac{1}{4}$ and $2\frac{1}{2}$ miles, are two other reefs, the nearest having 2 fathoms water, and the other about 5 fathoms, with from 10 to 13 fathoms water between them. As the sea frequently breaks on all these reefs, the south point of the island should not be approached under a distance of 3 miles.

The Coast of Masíra island from Ras-Abu-Rasas trends north-eastward for a distance of 11 miles to Ras Keida, forming small rocky points with sandy bays between; the hills rising abruptly from the beach. The shore, northward of the reefs already mentioned, is bold to approach, there being 5 fathoms within one mile of the shore, and no dangers exist until off Ras Keida.

Ras Dtharri is a projecting rocky point 6 miles north-eastward of Ras-Abu-Rasás.

Ras Keida is a small rocky point, which may be known by a black double-peaked hill rising close to it.

Reef.—A coral reef lies $1\frac{1}{2}$ miles East of Ras Keida, with from 3 to 7 fathoms water, and 8 to 11 fathoms between it and the shore. When the sea is smooth there is no indication of shoal water, but on the slightest swell rising the sea breaks heavily. Vessels should therefore avoid anchoring on it, or on any of the shallow banks around the island.

The Coast of Masíra island, from Ras Keida to Ras Zafarnat, a distance of 17 miles, in a north-east direction, is regular, with a low rocky beach, only one small sandy point occurring between the points. The shore is bold to approach, there being no danger.

Hakkan.—This small village is situated in a date grove close to the beach, at 5 miles northward of Ras Keida. The island near this part is only 4 miles across, forming low undulating hills.

Supplies.—Fresh water is procurable at the village of Hakkan, also a few pumpkins.

Ras Zafarnát is a rocky point, from which the hills rise abruptly, lying 2 miles south-westward of Ras Yei.

Ras Yei or Je, the eastern point of Masíra island, is a bluff point, formed by a ridge of hills extending eastward from the centre of the island, of which Jebel Mathrúb is the most elevated and most conspicuous, being 620 feet above the sea, and obtuse in form.

The depths off this point are 15 fathoms at one mile distant, and 22 to 25 fathoms at 2 miles, the edge of the bank being 10 miles off-shore.

Ras-al-Jezirat is a rocky point $3\frac{1}{2}$ miles north-westward of Ras Yei, between which two points the shore is rocky, but free from danger. It derives its name from a small sandy islet, lying close off it to the northward. The point is prominently marked by a black cove.

The Coast from Ras-al-Jesirat forms a slight curve with Ras Jidúfa, distant 7 miles. In this bay is a rock awash at low water, $1\frac{1}{4}$ miles from the shore, with Ras Jidúfa, bearing N. $\frac{1}{2}$ W.; close around the rock the depths are 3 and 4 fathoms. The depths in the bay are regular, there being 7 fathoms at 2 miles off-shore, decreasing gradually towards it.

Ras Jidúfa, the north-east extreme of the island, is a rocky point, having a hill of the same name rising immediately behind it. Off the point a reef extends half a mile, with shallow water on its edge; the point should therefore not be approached under one mile.

Anchorage.—There is anchorage in 7 fathoms sand and rock, at about $1\frac{1}{2}$ miles N.N.W. of Ras Jidúfa, but it is said to be not good, probably on account of the nature of the bottom.

Ras Hilf, the north-west point of the island, is low and sandy, southward of which, at a distance of $1\frac{1}{2}$ miles, is Jebel Hilf, a moderately elevated black hill. The coast between the two points is fronted by several patches of rocks, dry at low water, extending from a quarter to a half a mile off.

Shoals.—Between the bearings of N. by W. from Ras Hilf and N. $\frac{1}{2}$ E. of Ras Jidúfa, and distant from the shore from 3 to 5 miles, are five patches, with depths of $2\frac{1}{2}$ fathoms; between them and the island there is from $3\frac{1}{2}$ to 7 fathoms.

Between the north extreme of Masíra island and the mainland, and as far northward as Ras Sheiballa, the ground is foul, with depths of from 2 to 4 fathoms, on which the sea rolls heavily during the north-east monsoon, rendering this end of Masíra channel unapproachable in that season, except in boats.

Clearing mark.—Jebel Jidúfa bearing S.S.W. leads eastward of these shoals.

MASÍRA CHANNEL and West Coast of Masíra island.—Masíra channel lies between Masíra island and the main, and is 35 miles in length, by about 8 miles in width. The channel near its north end is reduced to about one quarter of a mile in width, with a depth of about 3 fathoms at low water, but should not be attempted by vessels unless bound to Om-Rasas. The channel is little frequented by native vessels about 40 tons burthen. *See* directions at page 151.*

Kinasat Hilf is a shoal partially dry at low water, lying between the north entrance points of Masíra channel, and bearing W. $\frac{1}{2}$ S., distant $1\frac{1}{2}$ miles from Ras Hilf, with depths between of from 3 to 7 fathoms. Between it and Dimna reef the depth is but $1\frac{1}{2}$ fathoms, sandy bottom.

The west coast of Masíra island from Ras Hilf, the north-west point, trends south-westward to Shaghaf, a distance of 9 miles, forming a slight curve, and fronted by a bank, which dries at low water from a half to three quarters of a mile off, and rocky foul ground from one to 2 miles. From Ras Shaghaf the coast trends more southward to the town of Om-Rasas (page 149), a distance of 8 miles, thence westward 3 miles, forming a bight. In this bight lies the low sandy island of Jezirat Shagha, which cannot be approached within $1\frac{1}{2}$ miles, on account of a bank, which, extending from the southern shore, surrounds the island to that distance, and dries at low water; between Shagha and the eastern shore of the bight, is a narrow inlet, with depths of from one to 3 fathoms water.

Daua is a small village, situated on the coast, in a grove of date trees, and 2 miles northward of Ras Shaghaf.

Water.—Good water may be obtained at Ras Shaghaf, off which there is anchorage in 4 or 5 fathoms water, at from one to $1\frac{1}{2}$ miles distant.

Beiyat-bin-Juwaisim.—Jezirat-bin-Juwaisim is an islet lying $2\frac{1}{2}$ miles from the Masirah shore, and on the eastern edge of Beiyat-bin-Juwaisim, which is $6\frac{1}{2}$ miles long by 3 miles broad, and mostly dry at low water. The northern edge of this shoal is $1\frac{1}{2}$ miles from Kinasat Hilf, with depths between of 2 to 4 fathoms. On either side of the shoal is a navigable channel for small craft, with depth of 3 to 4 fathoms. Three quarters of a mile south of Beiyat-bin-Juwaisim is a small patch of 2 fathoms.

* *See* Admiralty plan of Masíra channel, No. 1089; scale $m = 0.5$ of an inch.

At the south end of Beiyat-bin-Juwaisim the channels join, being bordered on the east side by the rocky ground extending off Masíra, and on the west by the bank of foul ground which extends about 6 miles from the mainland, terminating at Jezirat Sanfar, one of the Oyster islets. The depths in the channel are from 4 to 8 fathoms, and the width from $1\frac{1}{2}$ to 2 miles.

Westward of Om-Rasas, and on the edge of the western bank of the channel, is Hassar Walad Henal, a dangerous sunken rock, with only 2 feet water, and steep-to, from which Jebel Kairan bears S. by E., and Jebel Safaij is in one with the south point of Jezirat Shagha.

Om Rasas is the chief town of the island, and the residence of the sheikh, the population of which, together with Safaij, a village contiguous to it, is about 300 souls, who carry on a trifling trade with Maskat.* The town is fronted by the low island, Jezirat Shagha, before mentioned. An inlet, with from one to 3 fathoms water, fronts the town, by which small craft can get close up to it.

Jebel Safaij is a conical hill, close southward of the village of that name, with the remains of a fort on the summit.

Ras Kalbán.—From the western point of Om-Rasas bight the coast trends south-westward to Ras Kalbán, being rocky and irregular, forming small projecting points, and fronted by a rocky bank, and rocks above water, to the distance of three quarters of a mile from the shore.

Ras Kalbán is a low rocky point, with a sandy beach on either side of it, from whence the coast trends south.

Jebel Kairán, or Saddle hill, is a remarkable double-peaked hill, 385 feet above the sea, situated one mile from the beach, and nearly 4 miles north-eastward from Ras Kalbán.

Oyster Islets.—North-westward of Ras Kalbán are three rocky islets, known as the Oyster islets. Between Jezirat Sanfar, the northern islet, and the next, which bears S.W. by S. from it, distant 2 miles, are two patches of sunken rocks. Amkads, the southern

* This place was visited by H.M.S. *Arab*, in 1877; the inhabitants stated that no European vessels had visited it since the surveying vessel *Palinurus*, in 1849.

islet, lies one mile west of Ras Kalbán, and makes from the south-westward ; has a patch of sand with a small black rock at its west end. The islet can be seen about 7 miles.

Shoals.—A shoal, having about $1\frac{1}{2}$ fathoms, lies at about one mile W. by S. of Amkads. Shallow water extends a short distance northward of the islet.*

Zanatiyat, a dangerous group of rocks, about $1\frac{1}{2}$ miles in extent, with apparently less than 6 feet water on them, and from $\frac{1}{4}$ to 6 fathoms around, lies with Ras Kalbán, bearing N.E. $\frac{1}{4}$ E., distant $3\frac{1}{4}$ miles.

H.M.S. *Arab* (1877) reports a depth of about $2\frac{1}{2}$ fathoms, nearly 3 miles south-westward of Zanatiyat reef, with Jebel Sawir bearing S.E. $\frac{1}{4}$ E., and Amkads islet N.E. $\frac{1}{2}$ N.

The Coast from Ras Kalbán to the south point of the island, is low and sandy, and forms several low points. One mile and three quarters northward from the south point, and close in-shore, are two islets, and $1\frac{1}{4}$ miles farther north are three more islets, lying in an east and west direction, with some sunken rocks beyond them, extending altogether nearly $1\frac{1}{4}$ miles from the shore. The whole are collectively called Banat Marshid.

Kalbán is a small village, close to the coast, and distant $4\frac{1}{2}$ miles from the south point of the island.

Shab Sanfar is a reef just awash, three quarters of a mile long by half a mile in breadth, and distant from the shore $2\frac{1}{2}$ miles, with Jebel Sawir, bearing E. $\frac{1}{4}$ S. This shoal usually breaks, and may be seen from the masthead at a considerable distance.

The WESTERN SHORE of Masíra channel from Ras Mishsiyú, its southern extreme, is low and rocky, with intermediate sandy patches, until within 11 miles of Mawal islet, thence it is low and sandy to Ras Shanna.

Beiyat Dimna, is an extensive reef, dry at low water, commencing on the coast at 10 miles northward of Ras Mishiyu, and continuing to Ras Shanna, where it extends 4 miles from the shore.

At 4 miles southward of Ras Shanna is Maáwal, a low wooded islet, connected with the mainland at half-ebb, with a creek in a reef navigable for boats up to it.

* Remark Book, H.M.S. *Arab*, November 1877, Nav. Lieut. C. S. Keigwin.

From the head or east point of Beiyat Dimna, a sandbank, with from $1\frac{1}{2}$ to $2\frac{1}{2}$ fathoms water, extends southward as far as the Oyster islets, thence it turns sharply back to the north-westward, and joins the mainland.

Ras Shanna is a low sandy point, and forms the west point of the northern entrance to Masíra channel.

Tides.—It is high water, full and change, at the town of Om-Rasas at 10h.; springs rise 10 feet. The flood sets westward round the north point of the island, and S.S.W. down the channel; round the south point the flood sets W.N.W., thence N.N.E. up the channel, the two streams meeting off the town. The ebb tide sets fair the contrary way to the flood. Velocity of the tides varies from $1\frac{1}{2}$ to $2\frac{1}{2}$ miles per hour.

DIRECTIONS for Masíra Channel.—During the north-east monsoon, and in bad weather, the sea breaks heavily on the foul ground off the north entrance, at which time that channel should not be attempted. At all times the southern entrance is preferable, being much wider and deeper, but as shoals may exist in that channel which do not appear on the chart, and the depths in places may be less than those shown, coupled with the absence of good leading marks, great caution must be exercised.

North Entrance.—If the weather be clear, the line of the shoals is generally well defined, and it is said that little danger or difficulty would be experienced, except to the northward of Jezirat-bin-Juwásim, where the greatest depth at low water appears to be 3 fathoms, and the channel in one place scarcely more than 2 cables in breadth.

In coming from the north-eastward, Jidúfa hill, the north-east extreme of Masíra island, should be kept bearing westward of S.S.W. to avoid the shoals and foul ground northward of that island; in thick weather do not stand into less than 15 fathoms, as the water shoals quickly within that depth. When within one mile of Jidúfa point, haul to the westward, keeping that distance off-shore, until Ras Hilf bears South, to avoid the 2 fathom patch lying half a mile N.N.E. of it; then steer to pass Ras Hilf at one-third to half a mile distant. After passing Ras Hilf steer S. W. $\frac{3}{4}$ S. for Jezirat Juwásim, until Jebel Hilf approaches the bearing of E. by N.; here the channel between the reefs is but a quarter of a mile wide, with about 3 fathoms water, and the piloting should be done from aloft. When southward of this narrow part, steer S.S.W. 3 W., passing about three quarters of a mile

eastward of Jezirat Juwaisim; the same course should carry the vessel to the anchorage off Om-Rasas, off which a vessel may anchor in 3 fathoms, with the tower bearing S.E. $\frac{1}{2}$ S., and Jebel Kairan S.S.W. $\frac{1}{2}$ W., a convenient spot from which to communicate with the town. There is from 4 to 5 fathoms a little farther off-shore.

Another and broader channel leads northward and westward of Beiyat-bin-Juwaisim; but the eastern channel, being the more direct, is perhaps the preferable one.

To pass through this north-western channel, proceed round Ras Hilf, as before directed, until Jebel Hilf bears E. $\frac{3}{4}$ S.; then keep it on that bearing astern, until Jezirat-bin-Juwaisim bears S. by E. $\frac{1}{2}$ E.; then steer S.W. $\frac{3}{4}$ S. until the same islet bears E. by S. $\frac{1}{2}$ S., when course may be made for Jebel Kairan, bearing S. by W., and when the tower at Om-Rasas bears S.E. $\frac{1}{2}$ S., steer for it to the anchorage.

The navigable channel abreast the town is 2 miles wide, increasing in width to the northward, and decreasing to the southward. The eastern side is bounded by the bank of rocky ground with some rocks above water, which extends from the shore of the island, and should not be approached under three quarters to one mile. The opposite side of the channel is bounded by a sandbank with $1\frac{1}{2}$ to 2 fathoms water on it, and steep-to. The depths in the channel vary from 5 to 7 fathoms.

South Entrance.—In the south entrance to Masíra channel the depths are from 7 to 9 fathoms, sand and coral, with occasional overfalls, decreasing to 6 and 5 fathoms near the Oyster islets, which depths are maintained as far as Om-Rasas.

Entering the channel from the southward or south-eastward, Ras Abú-Rasás may be rounded at a distance of 3 miles, thence a N.N.W. course, gradually increasing the distance from the island to about 5 miles, to avoid the shoals and shallow ground, until Amkads, the southern of the Oyster islets, bears N.E. by E., when it may be steered for, passing southward of the shoal which lies one mile W. by S. of it; thence about 3 cables eastward or westward of Amkads, when it should be brought astern bearing S.W. $\frac{3}{4}$ S., which will lead to the anchorage off Om-Rasas, where a vessel may take a position as above directed. If passing westward of Amkads, observe that shallow water extends a short distance northward of it.

The COAST.—Ras Sheiballa is a low rocky point on the mainland at 15 miles northward of Masíra island; the coast from Ras Shanna being very low, sandy, and covered with bushes.

As before stated, a bank of foul ground, with from 2 to 4 fathoms water, extends from Ras Sheiballa to the island of Masíra, on which the sea rolls heavily during the north-east monsoon. See page 147.

Sheiballa Village.—About a mile inland from the point, is Sheiballa village, containing about 200 inhabitants of the Wheba tribe.

The Wheba have but few boats, and being very poor are obliged to have recourse to the kirbeh, an inflated sheepskin. It is commonly used by the inhabitants of this coast from Ras Rús to Khorya Morya bay. But with the poor Wheba its use is seen in perfection. As soon as a shoal of fish is viewed from the heights by those who are watching for them, the whole assemble, and seizing their skins and casting-nets, rush to the water's edge. Here the skin is quickly soaked and inflated, after which the hind and fore legs are tied together with a string. Thus prepared they step into the ring, and, slipping the skin up towards the lower part of the stomach, throw their casting-nets across the left shoulder, and wading into the water up to their necks, sit upon the string, which rests against the back part of their thighs, and thus paddle away with their hands to the place where the fish are. In this way as many as twenty at a time will enter the water and swim out to a distance of 2 miles. When they have arrived among the fish, they throw their casting-nets, and, gathering them up, return to the shore with what they contain, having no means of securing the fish on the spot.

Supplies.—A few goats may be obtained here, as at nearly all the villages on this part of the coast.

The Coast from Ras Sheiballa trends north-eastward 43 miles to Ras Jibsh, with the villages of Ghalát, Sherkh and Grun lying between; Sherkh, situated about midway, is said to be the seaport of a considerable community residing a short distance inland, who foster the slave trade. For 13 miles the land rises in cliffs of from 30 to 70 feet elevation, with sandy spaces intervening; after which it presents an unvaried line of low sand downs, without the slightest trace of vegetation or inhabitants. A heavy surf beats on the shore, rendering landing impracticable.

From Ras Jibsh to Ras-al-Khabba, the coast continues its north-easterly direction for a distance of 53 miles; it is all low and sandy, and of an uniform desolate appearance, with several small isolated hills near the coast, one of which, Jebel Jifan, is of round form.

Caution.—The coast as far northward as Ras Jibsh is inhabited by the Jeneba tribe, who bear a generally bad character.

The country bordering on the sea between Ras Jibsh and Ras-al-Hadd is styled Al-Ashkhara, or the eastern country, and forms no portion of the province of Oman, which lies contiguous to it on the west near the coast. It is entirely destitute of vegetation, but in the interior is diversified with extensive date groves and running streams, with small patches of cultivation, chiefly jowari and cotton.

Ras Jibsh is a small sandy point, having immediately over it a hill about 100 feet in height, nearly covered to the summit with white drift sand, three little dark peaks, of which the hill is composed, showing above the sand. On the centre peak are the remains of an old tower. On the south-west slope of the hill is a village containing about 60 inhabitants. In clear weather Jebel Jaalan, 3,900 feet high, and wedge-shaped, may be seen when off Ras Jibsh.

Landing.—On the north side of Ras Jibsh is a small bay, affording a good landing place in southerly winds, but much exposed to north-east winds.

The soundings are regular, the 20-fathoms line being $3\frac{1}{2}$ miles off Ras Jibsh, increasing its distance to the southward. The shore may be safely approached in any part to 5 fathoms of water.

The bank of soundings decreases in width northward of Ras Jibsh; at Ras-al-Khabba the 100-fathoms line is only 2 miles from the coast, and the 20-fathoms line one mile off: the lead therefore affords little guide. The soundings southward of Ras-al-Khabba are regular, and the coast may be approached anywhere to the distance of one mile.

AL-ASHKHARA, or LASHKHARA, is a long straggling town and fort, 27 miles north-eastward of Ras Jibsh, containing about 1,000 inhabitants of the Bú-Ali tribe. The country in the neighbourhood is a perfect desert and affords no supplies, beyond a few goats and fowls.*

Anchorage.—North-east of the town is a rocky point, the shore from which sweeps round north-westward, forming a small bay, with apparently a clean and clear bottom, the soundings decreasing gradually to the beach. The *Arab* anchored in $7\frac{1}{4}$ fathoms water, from a half to two-thirds of a mile from the beach. Landing was effected without difficulty in this bay, although the surf broke heavily on the shore on either side of it.

The water in the vicinity of Al-Ashkara is varied and changeable in its colour.

Jebel Seih, an oblong black hill several hundred feet high, bearing N.W. by W. $\frac{1}{4}$ W., distant 6 miles from Al-Ashkhara, with a

* Navigating Officers Remark Book, H.M.S. *Arab*, November, 1877.

haycock or conical hill a short distance north-east of it. Jebel Seih, when seen bearing W.N.W. forms a saddle hill, and is a good mark for making the place.

RAS GUMEILA is a low sandy point, about 9 miles north-eastward of Al-Ashkhara, backed by a ridge of low hills, one of which, Jebel Gumeila, is of a conical form, but not easily discernible from the north-eastward. The rather large town of Gumeila is situated one mile northward of the point.

Khor Beni-bu-Ali.—At $5\frac{1}{2}$ miles northward of Ras Gumeila, with Jebel Jáalan bearing N.W. by W. $\frac{1}{4}$ W. is a large black rock which effectually masks the entrance to the khor Beni-bu-Ali, discovered by H.M.S. *Kingfisher* in 1886. Shoal water apparently extends some distance northward of the rock, between which and the land there is stated to be a depth of one fathom at low water, leading into the khor, but the passage is not practicable during the south-west monsoon periods, as a considerable sea sets in. The khor has two arms, and is reported to be as large as khor Hajara (page 158), but has not been examined. It affords shelter to coasting and fishing craft, and is occasionally used by slave dhows, the slaves being marched overland to Súr.

About 30 coasting craft were hauled up in the khor in the summer of 1886, when visited by H.M.S. *Sphinx*. A fort and one stone house are situated about two miles northward of the khor, and a considerable village, named Suweih, of mud huts, exists here in the north-east monsoon period, the villagers going up the hills during the summer.

Ras al Ruweis is a low rocky point, with a few sandy hillocks, south-west, 3 miles from Ras-al-Khabba. Here is a village containing about 300 inhabitants, of the Bu-Ali tribe.

From 2 to 4 miles southward of this point a coral bank of 7 to 10 fathoms water, with overfalls, extends about 2 miles off-shore.

Jebel Jáalan.—This conspicuous mountain, situated about 22 miles inland of Ras Ruweis, is 3,900 feet above the sea, and in clear weather may be seen at a distance of 60 miles. At its southern slope are the chief towns of the Bú-Hassan and Bú-Ali tribes, who are rather friendly to Europeans.

RAS-AL-KHABBA is a low rocky point. Here the sandy shore terminates, and cliffs of from 60 to 100 feet in height extend with but a few short breaks to within 3 or 4 miles of Ras-al-Hadd. All this part of the coast is very bold, with no safe anchorage.

From 20 miles southward of Ras-al-Khabba, the high mountains of Kalhat will be seen towering behind Jebel Jáalan.

Anchorage.—There is tolerable shelter from northerly winds, in 6 fathoms, with Ras-al-Khabba bearing N.E. by N., about 2 miles.

Jebel Khamis, a mountain 2,700 feet above the sea, is a rugged peak of dark colour, and is seen to the northward of Jebel Jáalan from off Al Ashkhara.

Ras-al-Juneiz, the east point of Arabia, lies 7 miles southward of Ras-al-Hadd. It is a low cliff, off which there is a depth of 100 fathoms, at 2 miles distance.

Jebel Sifan is formed of two remarkable hills, close together, south-westward of Ras-al-Juneiz. They are quoin-shaped, of equal height, 850 feet above the sea, with the steep side to the westward, and stand on a table-land 100 feet in height.

Being isolated and close to the coast, these hills, visible above 30 miles, form good land marks for identifying Ras-al-Juneiz: and when the comparatively low land about there is below the horizon (distant about, 15 miles) they appear, from the northward or southward, like an island with a deep notch in it.

The inhabitants of the coast between Ras Jibsh and Ras-al-Hadd are of the Bú-Ali tribe, and are friendly to Europeans. *See* caution on page 153.

RAS-AL-HADD.—The low cliffs of Ras-al-Juneiz sink into a low sandy shore 3 miles below this cape, which is a low sandy point not easily made out, with a few date trees in the little town of Al-Hadd, lying one mile south-west of it. The town consists of three round towers and a number of mat huts, with about 700 of the Ghazal tribe. The people are civil, as is the case at all the towns north of this, and subject to the Imaum of Maskat. The authority of that prince, south of this point, is quite nominal.

Supplies.—Indifferent water may be had abreast a small clump of date trees 2 miles to the southward; and bullocks and goats may be had at the town.

Anchorage.—There is anchorage in 8 to 10 fathoms water, coral bottom, half to three quarters of a mile off shore, with the town of Al-Hadd, bearing West. The water shoals rapidly from 10 fathoms to 7, 6, and 5 fathoms, the bottom being distinctly visible. This anchorage is exposed to all winds from the sea.

A better position from which to watch the arrival of dhows, and without being seen, is westward of Ras-al-Hadd, off khor Hajara,

where there is anchorage in 16 fathoms, with the Sifan peaks in line with the Khor entrance, and Ras-al-Hadd E. $\frac{1}{2}$ N. The depths decrease gradually to the shore, there being 3 fathoms at 40 yards distance. From the masthead the sea may be seen over the low point.*

The temperature here was quite a relief, after the suffocating heat at Maskat, varying from 83 in the day time to 74 at night (September); whilst at Maskat it was for 86 to 95°, sometimes remaining near the maximum all night.

Tides.—It is high water, full and change, at Ras-al-Hadd, at 9h. 30m.; springs rise 9 feet.

The currents off Ras-al-Hadd are said to be variable, depending on the winds. H.M.S. *Ranger* (1885) found the current, between the 21st August and 17th October, setting to the eastward at the rate of $1\frac{1}{2}$ knots per hour, one day only excepted.

During the south-west monsoon the current has been found to set northward along the coast at about one mile per hour until abreast of Ras-al-Hadd, where it was deflected to the north-eastward, attaining a rate of about 2 miles per hour, at times further increased by the ebb stream along the south shore of the gulf of Oman. Vessels lying-to at night off Ras-al-Hadd have found themselves out of sight of land at daylight.†

Challenger Bank.—On August 9th, 1830, at 1.30 p.m., discoloured water, with rippings, was observed from H.M.S. *Challenger*, in 22° 29' N., and about 40 miles east from Ras-al-Hadd. On sounding, two casts of 13 fathoms water were obtained, and soon after no ground at 65 fathoms, the sea having resumed its natural colour. The bank appeared 3 miles long by half a mile broad. The *Palinurus*, while surveying the coast, made diligent search for it, but without success. H.M.S. *Ranger* (1885) reports a depth of 55 fathoms, sand, and 55 fathoms, rock, at about 18 miles south-eastward of Ras-al-Hadd. Position approximate lat. 22° 23' N., long. 60° 4' E. This vessel was unsuccessful when searching for this bank on a subsequent occasion, no bottom being obtainable at 80 fathoms.

The Coast trends sharply to the westward at Ras-al-Hadd, for 15 miles, to the town of Súr, and the 100-fathoms line is at an average distance of 3 miles from the shore. From Súr the coast sweeps gently north-westward to Ras-ash-Shajar, the mountains

* See Khor Beni-bu-Ali, page 155.

† H.M.S. *Kingsfisher*, 1886.

Jebel Kalhát descending precipitously to the sea, with very deep water close to the shore, and with no off-lying dangers. Cliffs recommence 2 miles west of Ras-al-Hadd, and extend for 6 miles.

Khor-al-Hajar, at 2 miles westward of Ras-al-Hadd, is a small and shallow inlet used by fishing boats. Its entrance, between two low cliffs, has a depth of 2 fathoms, shoaling gradually inside; the inner portion is dry at low water. The khor is about one mile in extent, and reaches close to the back of Al-Hadd village. At the eastern extremity of this khor are a number of ruins; also a little jetty, which served as a landing place when, according to tradition, the khor was much deeper than it is at present. The ruins do not appear to be the remains of buildings of any consequence, although they are said to be those of a large town. The anchorage off the khor is described on page 156, with Ras-al-Hadd.

KHOR JARAMA, lying $1\frac{1}{2}$ miles westward of Al-Hajar, is 2 miles in length by one mile in breadth; the channel leading to it is one mile long and 150 yards broad, between cliffs 60 feet in height.

It affords excellent shelter, and is easily accessible to steam vessels drawing less than 15 feet water.*

A white beacon, 30 feet high, marks the eastern point of entrance.

The depths are 4 to 6 fathoms, mud, between the entrance points, but at a quarter of a mile within them, shoal ground, having depths of 7 to 8 feet, extends from the western shore, leaving on the east side a channel 60 yards wide, with apparently a least depth of $3\frac{1}{2}$ fathoms. The southern shore is low with a mangrove swamp, and an isolated black hill close to it.

It is used by native vessels as a harbour of refuge only, there being no village on its shore, nor is any water procurable, but an abundance of fish may be taken with the seine. A town once existed on the south-west side of the khor, but it is said to have been abandoned from want of water.†

Tides.—It is high water, full and change, at 9h. 30m.; springs rise 10 feet. Velocity of tides in the entrance to the khor, 2 miles per hour.

Directions.—From the offing, the hill situated on the south-west side of khor Jarama, appears as a truncated cone, and is a good mark. The entrance to the khor is in line with it, when bearing S.W. by S. Entering khor Jarama, keep close to the eastern shore,

* H.M.S. *Ready*, 1880.

† See plan of Khor Jarama, on chart No. 10c; scale, $\pi = 3$ inches.

till past the shoal, which, situated a quarter of an mile within the entrance, extends from the western shore and leaves no deep channel on that side; thence keep in mid-channel, and pass on either side of the island dividing the passage at the mouth of the basin—the eastern channel is preferable, being more direct and deeper—and anchor as convenient.

Outer Anchorage.—In the south-west monsoon period, there is good anchorage half a mile off the entrance to the khor, in 10 or 12 fathoms, mud and sand, with Ras-al-Hadd tower bearing E. by S. $\frac{1}{2}$ S.

Ras Sherh is a slightly projecting point of the cliff, 8 miles westward of Ras-al-Hadd; from this point to Súr there is a ridge of low broken hills with patches of cliff.

SÚR is a large town, or rather two towns, situated on a khor, 15 miles westward of Ras-al-Hadd. There are also two forts surrounded by huts westward of it, all included under the general denomination of Súr. The total number of inhabitants may be 10,000.

Hejah, the town on the east side of the khor, is inhabited by people of the Bu-Ali tribe; the other, Um Kreymeteyn, by the Jeneba. The khor is narrow at the entrance, with only a depth of 3 feet on the bar at low water; within, the depths are from 2 to 3 fathoms. Native craft lie here.

There is little to be seen of the towns from the offing, the two forts are on higher ground and first seen. Jebel Khamis bearing S.W. by S., may be useful as a guide in making the place. Just north-eastward of Súr, the 100-fathoms line of soundings is only one mile off-shore.

Considerable trade is carried on with India, Zanzibar, and the Persian gulf in native craft, and numberless fishing boats which frequent the whole coast of Arabia. The trade is principally confined to imports, the only exports being dried dates and salted fish. They manufacture a coarse checkered cloth for turbans, &c. Many Banyans, natives of Kutch, are settled here, and the trade is very much in their hands.

Supplies.—Cattle and vegetables might be obtained here, but water is scarce.

Anchorage.—There is anchorage off the town in from 10 to 15 fathoms, sandy bottom, from a half to three quarters of a mile off shore; also in 5 fathoms water, about a mile off the easternmost tower (west town). It is quite an open roadstead.

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